



SEQUENCE LISTING

<110> CALIFORNIA INSTITUTE OF TECHNOLOGY
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<120> POLYCYSTIC KIDNEY DISEASE GENE HOMOLOGS REQUIRED FOR MALE MATING
BEHAVIOR IN NEMATODES AND ASSAYS BASED THEREON

<130> CIT1520-2

<140> US 09/655,160

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<160> 16

<170> PatentIn version 3.1

<210> 1

<211> 12912

<212> DNA

<213> Homo sapiens PKD-1 gene

<220>

<221> CDS

<222> (1)..(12912)

<223>

<400> 1

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Cys Glu Pro Pro Cys Leu Cys Gly Pro Ala Pro Gly Ala Ala Cys Arg	
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Val Asn Cys Ser Gly Arg Gly Leu Arg Thr Leu Gly Pro Ala Leu Arg	
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Val Ala	Val Gly	Val Ser	Asp	Gly Val	Leu Val	Ala	Gly Arg	Pro	
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1655						1660					1665				
tgg	agg	gac	agg	ggc	ccg	gcc	ctg	gcc	ggc	agc	ggc	aaa	ggc	ttc	5049
Trp	Arg	Asp	Arg	Gly	Pro	Ala	Leu	Ala	Gly	Ser	Gly	Lys	Gly	Phe	
1670						1675					1680				
tcg	ctc	acc	gtg	ctc	gag	gcc	ggc	acc	tac	cat	gtg	cag	ctg	cgg	5094
Ser	Leu	Thr	Val	Leu	Glu	Ala	Gly	Thr	Tyr	His	Val	Gln	Leu	Arg	
1685						1690					1695				
gcc	acc	aac	atg	ctg	ggc	agc	gcc	tgg	gcc	gac	tgc	acc	atg	gac	5139
Ala	Thr	Asn	Met	Leu	Gly	Ser	Ala	Trp	Ala	Asp	Cys	Thr	Met	Asp	
1700						1705					1710				
ttc	gtg	gag	cct	gtg	ggg	tgg	ctg	atg	gtg	gcc	gcc	tcc	ccg	aac	5184
Phe	Val	Glu	Pro	Val	Gly	Trp	Leu	Met	Val	Ala	Ala	Ser	Pro	Asn	
1715						1720					1725				
cca	gct	gcc	gtc	aac	aca	agc	gtc	acc	ctc	agt	gcc	gag	ctg	gct	5229
Pro	Ala	Ala	Val	Asn	Thr	Ser	Val	Thr	Leu	Ser	Ala	Glu	Leu	Ala	
1730						1735					1740				
ggc	ggc	agt	ggc	gtc	gta	tac	act	tgg	tcc	ttg	gag	gag	ggg	ctg	5274
Gly	Gly	Ser	Gly	Val	Val	Tyr	Thr	Trp	Ser	Leu	Glu	Glu	Gly	Leu	
1745						1750					1755				
agc	tgg	gag	acc	tcc	gag	cca	ttt	acc	acc	cat	agc	ttc	ccc	aca	5319
Ser	Trp	Glu	Thr	Ser	Glu	Pro	Phe	Thr	Thr	His	Ser	Phe	Pro	Thr	

1760	1765	1770	
ccc ggc ctg cac ttg gtc acc Pro Gly Leu His Leu Val Thr 1775	atg acg gca ggg aac Met Thr Ala Gly Asn 1780	cag ctg ggc Pro Leu Gly 1785	5364
tca gcc aac gcc acc gtg gaa Ser Ala Asn Ala Thr Val Glu 1790	gtg gat gtg cag gtg Val Asp Val Gln Val 1795	cct gtg agt Pro Val Ser 1800	5409
ggc ctc agc atc agg gcc agc Gly Leu Ser Ile Arg Ala Ser 1805	gag ccc gga ggc agc Glu Pro Gly Gly Ser 1810	ttc gtg gcg Phe Val Ala 1815	5454
gcc ggg tcc tct gtg ccc ttt Ala Gly Ser Ser Val Pro Phe 1820	tgg ggg cag ctg gcc Trp Gly Gln Leu Ala 1825	acg ggc acc Thr Gly Thr 1830	5499
aac gtg agc tgg tgc tgg gct Asn Val Ser Trp Cys Trp Ala 1835	gtg ccc ggc ggc agc Val Pro Gly Gly Ser 1840	agc aag cgt Ser Lys Arg 1845	5544
ggc cct cat gtc acc atg gtc Gly Pro His Val Thr Met Val 1850	ttc ccg gat gct ggc Phe Pro Asp Ala Gly 1855	acc ttc tcc Thr Phe Ser 1860	5589
atc cgg ctc aat gcc tcc aac Ile Arg Leu Asn Ala Ser Asn 1865	gca gtc agc tgg gtc Ala Val Ser Trp Val 1870	tca gcc acg Ser Ala Thr 1875	5634
tac aac ctc acg gcg gag gag Tyr Asn Leu Thr Ala Glu Glu 1880	ccc atc gtg ggc ctg Pro Ile Val Gly Leu 1885	gtg ctg tgg Val Leu Trp 1890	5679
gcc agc agc aag gtg gtg gcg Ala Ser Ser Lys Val Val Ala 1895	ccc ggg cag ctg gtc Pro Gly Gln Leu Val 1900	cat ttt cag His Phe Gln 1905	5724
atc ctg ctg gct gcc ggc tca Ile Leu Leu Ala Ala Gly Ser 1910	gct gtc acc ttc cgc Ala Val Thr Phe Arg 1915	cta cag gtc Leu Gln Val 1920	5769
ggc ggg gcc aac ccc gag gtg Gly Gly Ala Asn Pro Glu Val 1925	ctc ccc ggg ccc cgt Leu Pro Gly Pro Arg 1930	ttc tcc cac Phe Ser His 1935	5814
agc ttc ccc cgc gtc gga gac Ser Phe Pro Arg Val Gly Asp 1940	cac gtg gtg agc gtg His Val Val Ser Val 1945	cgg ggc aaa Arg Gly Lys 1950	5859
aac cac gtg agc tgg gcc cag Asn His Val Ser Trp Ala Gln 1955	gcg cag gtg cgc atc Ala Gln Val Arg Ile 1960	gtg gtg ctg Val Val Leu 1965	5904
gag gcc gtg agt ggg ctg cag Glu Ala Val Ser Gly Leu Gln 1970	gtg ccc aac tgc tgc Val Pro Asn Cys Cys 1975	gag cct ggc Glu Pro Gly 1980	5949
atc gcc acg ggc act gag agg Ile Ala Thr Gly Thr Glu Arg 1985	aac ttc aca gcc cgc Asn Phe Thr Ala Arg 1990	gtg cag cgc Val Gln Arg 1995	5994

ggc tct	cgg gtc gcc tac gcc	tgg tac ttc tgc ctg	cag aag gtc	6039
Gly Ser	Arg Val Ala Tyr Ala	Trp Tyr Phe Ser Leu	Gln Lys Val	
2000	2005	2010		
cag ggc	gac tgc ctg gtc atc	ctg tgc ggc cgc gac	gtc acc tac	6084
Gln Gly	Asp Ser Leu Val Ile	Leu Ser Gly Arg Asp	Val Thr Tyr	
2015	2020	2025		
acg ccc	gtg gcc gcg ggg ctg	ttg gag atc cag gtg	cgc gcc ttc	6129
Thr Pro	Val Ala Ala Gly Leu	Leu Glu Ile Gln Val	Arg Ala Phe	
2030	2035	2040		
aac gcc	ctg ggc agt gag aac	cgc acg ctg gtg ctg	gag gtt cag	6174
Asn Ala	Leu Gly Ser Glu Asn	Arg Thr Leu Val Leu	Glu Val Gln	
2045	2050	2055		
gac gcc	gtc cag tat gtg gcc	ctg cag agc ggc ccc	tgc ttc acc	6219
Asp Ala	Val Gln Tyr Val Ala	Leu Gln Ser Gly Pro	Cys Phe Thr	
2060	2065	2070		
aac cgc	tgc gcg cag ttt gag	gcc gcc acc agc ccc	agc ccc cgg	6264
Asn Arg	Ser Ala Gln Phe Glu	Ala Ala Thr Ser Pro	Ser Pro Arg	
2075	2080	2085		
cgt gtg	gcc tac cac tgg gac	ttt ggg gat ggg tgc	cca ggg cag	6309
Arg Val	Ala Tyr His Trp Asp	Phe Gly Asp Gly Ser	Pro Gly Gln	
2090	2095	2100		
gac aca	gat gag ccc agg gcc	gag cac tcc tac ctg	agg cct ggg	6354
Asp Thr	Asp Glu Pro Arg Ala	Glu His Ser Tyr Leu	Arg Pro Gly	
2105	2110	2115		
gac tac	cgc gtg cag gtg aac	gcc tcc aac ctg gtg	agc ttc ttc	6399
Asp Tyr	Arg Val Gln Val Asn	Ala Ser Asn Leu Val	Ser Phe Phe	
2120	2125	2130		
gtg gcg	cag gcc acg gtg acc	gtc cag gtg ctg gcc	tgc cgg gag	6444
Val Ala	Gln Ala Thr Val Thr	Val Gln Val Leu Ala	Cys Arg Glu	
2135	2140	2145		
ccg gag	gtg gac gtg gtc ctg	ccc ctg cag gtg ctg	atg cgg cga	6489
Pro Glu	Val Asp Val Val Leu	Pro Leu Gln Val Leu	Met Arg Arg	
2150	2155	2160		
tca cag	cgc aac tac ttg gag	gcc cac gtt gac ctg	cgc gac tgc	6534
Ser Gln	Arg Asn Tyr Leu Glu	Ala His Val Asp Leu	Arg Asp Cys	
2165	2170	2175		
gtc acc	tac cag act gag tac	cgc tgg gag gtg tat	cgc acc gcc	6579
Val Thr	Tyr Gln Thr Glu Tyr	Arg Trp Glu Val Tyr	Arg Thr Ala	
2180	2185	2190		
agc tgc	cag cgg ccg ggg cgc	cca gcg cgt gtg gcc	ctg ccc ggc	6624
Ser Cys	Gln Arg Pro Gly Arg	Pro Ala Arg Val Ala	Leu Pro Gly	
2195	2200	2205		
gtg gac	gtg agc cgg cct cgg	ctg gtg ctg ccg cgg	ctg gcg ctg	6669
Val Asp	Val Ser Arg Pro Arg	Leu Val Leu Pro Arg	Leu Ala Leu	
2210	2215	2220		

cct gtg ggg cac tac tgc ttt	gtg ttt gtc gtg tca	ttt ggg gac	6714
Pro Val Gly His Tyr Cys Phe	Val Phe Val Val Ser	Phe Gly Asp	
2225	2230	2235	
acg cca ctg aca cag agc atc	cag gcc aat gtg acg	gtg gcc ccc	6759
Thr Pro Leu Thr Gln Ser Ile	Gln Ala Asn Val Thr	Val Ala Pro	
2240	2245	2250	
gag cgc ctg gtg ccc atc att	gag ggt ggc tca tac	cgc gtg tgg	6804
Glu Arg Leu Val Pro Ile Ile	Glu Gly Gly Ser Tyr	Arg Val Trp	
2255	2260	2265	
tca gac aca cgg gac ctg gtg	ctg gat ggg agc gag	tcc tac gac	6849
Ser Asp Thr Arg Asp Leu Val	Leu Asp Gly Ser Glu	Ser Tyr Asp	
2270	2275	2280	
ccc aac ctg gag gac ggc gac	cag acg ccg ctc agt	ttc cac tgg	6894
Pro Asn Leu Glu Asp Gly Asp	Gln Thr Pro Leu Ser	Phe His Trp	
2285	2290	2295	
gcc tgt gtg gct tcg aca cag	agg gag gct ggc ggg	tgt gcg ctg	6939
Ala Cys Val Ala Ser Thr Gln	Arg Glu Ala Gly Gly	Cys Ala Leu	
2300	2305	2310	
aac ttt ggg ccc cgc ggg agc	agc acg gtc acc att	cca cgg gag	6984
Asn Phe Gly Pro Arg Gly Ser	Ser Thr Val Thr Ile	Pro Arg Glu	
2315	2320	2325	
cgg ctg gcg gct ggc gtg gag	tac acc ttc agc ctg	acc gtg tgg	7029
Arg Leu Ala Ala Gly Val Glu	Tyr Thr Phe Ser Leu	Thr Val Trp	
2330	2335	2340	
aag gcc ggc cgc aag gag gag	gcc acc aac cag acg	gtg ctg atc	7074
Lys Ala Gly Arg Lys Glu Glu	Ala Thr Asn Gln Thr	Val Leu Ile	
2345	2350	2355	
cgg agt ggc cgg gtg ccc att	gtg tcc ttg gag tgt	gtg tcc tgc	7119
Arg Ser Gly Arg Val Pro Ile	Val Ser Leu Glu Cys	Val Ser Cys	
2360	2365	2370	
aag gca cag gcc gtg tac gaa	gtg agc cgc agc tcc	tac gtg tac	7164
Lys Ala Gln Ala Val Tyr Glu	Val Ser Arg Ser Ser	Tyr Val Tyr	
2375	2380	2385	
ttg gag ggc cgc tgc ctc aat	tgc agc agc ggc tcc	aag cga ggg	7209
Leu Glu Gly Arg Cys Leu Asn	Cys Ser Ser Gly Ser	Lys Arg Gly	
2390	2395	2400	
cgg tgg gct gca cgt acg ttc	agc aac aag acg ctg	gtg ctg gat	7254
Arg Trp Ala Ala Arg Thr Phe	Ser Asn Lys Thr Leu	Val Leu Asp	
2405	2410	2415	
gag acc acc aca tcc acg ggc	agt gca ggc atg cga	ctg gtg ctg	7299
Glu Thr Thr Thr Ser Thr Gly	Ser Ala Gly Met Arg	Leu Val Leu	
2420	2425	2430	
cgg cgg ggc gtg ctg cgg gac	ggc gag gga tac acc	ttc acg ctc	7344
Arg Arg Gly Val Leu Arg Asp	Gly Glu Gly Tyr Thr	Phe Thr Leu	
2435	2440	2445	
acg gtg ctg ggc cgc tct ggc	gag gag gag ggc tgc	gcc tcc atc	7389

Thr Val	Leu Gly Arg Ser Gly	Glu Glu Glu Gly Cys	Ala Ser Ile	
2450	2455	2460		
cgc ctg	tcc ccc aac cgc cgc	cgc ctg ggg ggc tct	tgc cgc ctc	7434
Arg Leu	Ser Pro Asn Arg Pro	Pro Leu Gly Gly Ser	Cys Arg Leu	
2465	2470	2475		
ttc cca	ctg ggc gct gtg cac	gcc ctc acc acc aag	gtg cac ttc	7479
Phe Pro	Leu Gly Ala Val His	Ala Leu Thr Thr Lys	Val His Phe	
2480	2485	2490		
gaa tgc	acg ggc tgg cat gac	gcg gag gat gct ggc	gcc ccg ctg	7524
Glu Cys	Thr Gly Trp His Asp	Ala Glu Asp Ala Gly	Ala Pro Leu	
2495	2500	2505		
gtg tac	gcc ctg ctg ctg cgg	cgc tgt cgc cag ggc	cac tgc gag	7569
Val Tyr	Ala Leu Leu Leu Arg	Arg Cys Arg Gln Gly	His Cys Glu	
2510	2515	2520		
gag ttc	tgt gtc tac aag ggc	agc ctc tcc agc tac	gga gcc gtg	7614
Glu Phe	Cys Val Tyr Lys Gly	Ser Leu Ser Ser Tyr	Gly Ala Val	
2525	2530	2535		
ctg ccc	cgc ggt ttc agg cca	cac ttc gag gtg ggc	ctg gcc gtg	7659
Leu Pro	Pro Gly Phe Arg Pro	His Phe Glu Val Gly	Leu Ala Val	
2540	2545	2550		
gtg gtg	cag gac cag ctg gga	gcc gct gtg gtc gcc	ctc aac agg	7704
Val Val	Gln Asp Gln Leu Gly	Ala Ala Val Val Ala	Leu Asn Arg	
2555	2560	2565		
tct ttg	gcc atc acc ctc cca	gag ccc aac ggc agc	gca acg ggg	7749
Ser Leu	Ala Ile Thr Leu Pro	Glu Pro Asn Gly Ser	Ala Thr Gly	
2570	2575	2580		
ctc aca	gtc tgg ctg cac ggg	ctc acc gct agt gtg	ctc cca ggg	7794
Leu Thr	Val Trp Leu His Gly	Leu Thr Ala Ser Val	Leu Pro Gly	
2585	2590	2595		
ctg ctg	cgg cag gcc gat ccc	cag cac gtc atc gag	tac tcg ttg	7839
Leu Leu	Arg Gln Ala Asp Pro	Gln His Val Ile Glu	Tyr Ser Leu	
2600	2605	2610		
gcc ctg	gtc acc gtg ctg aac	gag tac gag cgg gcc	ctg gac gtg	7884
Ala Leu	Val Thr Val Leu Asn	Glu Tyr Glu Arg Ala	Leu Asp Val	
2615	2620	2625		
gcg gca	gag ccc aag cac gag	cgg cag cac cga gcc	cag ata cgc	7929
Ala Ala	Glu Pro Lys His Glu	Arg Gln His Arg Ala	Gln Ile Arg	
2630	2635	2640		
aag aac	atc acg gag act ctg	gtg tcc ctg agg gtc	cac act gtg	7974
Lys Asn	Ile Thr Glu Thr Leu	Val Ser Leu Arg Val	His Thr Val	
2645	2650	2655		
gat gac	atc cag cag atc gct	gct gcg ctg gcc cag	tgc atg ggg	8019
Asp Asp	Ile Gln Gln Ile Ala	Ala Ala Leu Ala Gln	Cys Met Gly	
2660	2665	2670		
ccc agc	agg gag ctc gta tgc	cgc tcg tgc ctg aag	cag acg ctg	8064
Pro Ser	Arg Glu Leu Val Cys	Arg Ser Cys Leu Lys	Gln Thr Leu	

2675	2680	2685	
cac aag ctg gag gcc atg atg ctc atc ctg cag gca gag acc acc			8109
His Lys Leu Glu Ala Met Met Leu Ile Leu Gln Ala Glu Thr Thr			
2690	2695	2700	
ggc ggc acc gtg acg ccc acc gcc atc gga gac agc atc ctc aac			8154
Ala Gly Thr Val Thr Pro Thr Ala Ile Gly Asp Ser Ile Leu Asn			
2705	2710	2715	
atc aca gga gac ctc atc cac ctg gcc agc tcg gac gtg cgg gca			8199
Ile Thr Gly Asp Leu Ile His Leu Ala Ser Ser Asp Val Arg Ala			
2720	2725	2730	
cca cag ccc tca gag ctg gga gcc gag tca cca tct cgg atg gtg			8244
Pro Gln Pro Ser Glu Leu Gly Ala Glu Ser Pro Ser Arg Met Val			
2735	2740	2745	
ggg tcc cag gcc tac aac ctg acc tct gcc ctc atg cgc atc ctc			8289
Ala Ser Gln Ala Tyr Asn Leu Thr Ser Ala Leu Met Arg Ile Leu			
2750	2755	2760	
atg cgc tcc cgc gtg ctc aac gag gag ccc ctg acg ctg gcg ggc			8334
Met Arg Ser Arg Val Leu Asn Glu Glu Pro Leu Thr Leu Ala Gly			
2765	2770	2775	
gag gag atc gtg gcc cag ggc aag cgc tcg gac cgg cgg agc ctg			8379
Glu Glu Ile Val Ala Gln Gly Lys Arg Ser Asp Pro Arg Ser Leu			
2780	2785	2790	
ctg tgc tat ggc ggc gcc cca ggg cct ggc tgc cac ttc tcc atc			8424
Leu Cys Tyr Gly Gly Ala Pro Gly Pro Gly Cys His Phe Ser Ile			
2795	2800	2805	
ccc gag gct ttc agc ggg gcc ctg gcc aac ctc agt gac gtg gtg			8469
Pro Glu Ala Phe Ser Gly Ala Leu Ala Asn Leu Ser Asp Val Val			
2810	2815	2820	
cag ctc atc ttt ctg gtg gac tcc aat ccc ttt ccc ttt ggc tat			8514
Gln Leu Ile Phe Leu Val Asp Ser Asn Pro Phe Pro Phe Gly Tyr			
2825	2830	2835	
atc agc aac tac acc gtc tcc acc aag gtg gcc tcg atg gca ttc			8559
Ile Ser Asn Tyr Thr Val Ser Thr Lys Val Ala Ser Met Ala Phe			
2840	2845	2850	
cag aca cag gcc ggc gcc cag atc ccc atc gag cgg ctg gcc tca			8604
Gln Thr Gln Ala Gly Ala Gln Ile Pro Ile Glu Arg Leu Ala Ser			
2855	2860	2865	
gag cgc gcc atc acc gtg aag gtg ccc aac aac tcg gac tgg gct			8649
Glu Arg Ala Ile Thr Val Lys Val Pro Asn Asn Ser Asp Trp Ala			
2870	2875	2880	
gcc cgg ggc cac cgc agc tcc gcc aac tcc gcc aac tcc gtt gtg			8694
Ala Arg Gly His Arg Ser Ser Ala Asn Ser Ala Asn Ser Val Val			
2885	2890	2895	
gtc cag ccc cag gcc tcc gtc ggt gct gtg gtc acc ctg gac agc			8739
Val Gln Pro Gln Ala Ser Val Gly Ala Val Val Thr Leu Asp Ser			
2900	2905	2910	

agc aac cct gcg gcc ggg ctg cat ctg cag ctc aac tat acg ctg Ser Asn Pro Ala Ala Gly Leu His Leu Gln Leu Asn Tyr Thr Leu 2915 2920 2925	8784
ctg gac ggc cac tac ctg tct gag gaa cct gag ccc tac ctg gca Leu Asp Gly His Tyr Leu Ser Glu Glu Pro Glu Pro Tyr Leu Ala 2930 2935 2940	8829
gtc tac cta cac tcg gag ccc cgg ccc aat gag cac aac tgc tcg Val Tyr Leu His Ser Glu Pro Arg Pro Asn Glu His Asn Cys Ser 2945 2950 2955	8874
gct agc agg agg atc cgc cca gag tca ctc cag ggt gct gac cac Ala Ser Arg Arg Ile Arg Pro Glu Ser Leu Gln Gly Ala Asp His 2960 2965 2970	8919
cgg ccc tac acc ttc ttc att tcc ccg ggg agc aga gac cca gcg Arg Pro Tyr Thr Phe Phe Ile Ser Pro Gly Ser Arg Asp Pro Ala 2975 2980 2985	8964
ggg agt tac cat ctg aac ctc tcc agc cac ttc cgc tgg tcg gcg Gly Ser Tyr His Leu Asn Leu Ser Ser His Phe Arg Trp Ser Ala 2990 2995 3000	9009
ctg cag gtg tcc gtg ggc ctg tac acg tcc ctg tgc cag tac ttc Leu Gln Val Ser Val Gly Leu Tyr Thr Ser Leu Cys Gln Tyr Phe 3005 3010 3015	9054
agc gag gag gac atg gtg tgg cgg aca gag ggg ctg ctg ccc ctg Ser Glu Glu Asp Met Val Trp Arg Thr Glu Gly Leu Leu Pro Leu 3020 3025 3030	9099
gag gag acc tcg ccc cgc cag gcc gtc tgc ctc acc cgc cac ctc Glu Glu Thr Ser Pro Arg Gln Ala Val Cys Leu Thr Arg His Leu 3035 3040 3045	9144
acc gcc ttc ggc gcc agc ctc ttc gtg ccc cca agc cat gtc cgc Thr Ala Phe Gly Ala Ser Leu Phe Val Pro Pro Ser His Val Arg 3050 3055 3060	9189
ttt gtg ttt cct gag ccg aca gcg gat gta aac tac atc gtc atg Phe Val Phe Pro Glu Pro Thr Ala Asp Val Asn Tyr Ile Val Met 3065 3070 3075	9234
ctg aca tgt gct gtg tgc ctg gtg acc tac atg gtc atg gcc gcc Leu Thr Cys Ala Val Cys Leu Val Thr Tyr Met Val Met Ala Ala 3080 3085 3090	9279
atc ctg cac aag ctg gac cag ttg gat gcc agc cgg ggc cgc gcc Ile Leu His Lys Leu Asp Gln Leu Asp Ala Ser Arg Gly Arg Ala 3095 3100 3105	9324
atc cct ttc tgt ggg cag cgg ggc cgc ttc aag tac gag atc ctc Ile Pro Phe Cys Gly Gln Arg Gly Arg Phe Lys Tyr Glu Ile Leu 3110 3115 3120	9369
gtc aag aca ggc tgg ggc cgg gcc tca ggt acc acg gcc cac gtg Val Lys Thr Gly Trp Gly Arg Gly Ser Gly Thr Thr Ala His Val 3125 3130 3135	9414

ggc atc atg ctg tat ggg gtg gac agc cgg agc ggc cac cgg cac	9459
Gly Ile Met Leu Tyr Gly Val Asp Ser Arg Ser Gly His Arg His	
3140 3145 3150	
ctg gac ggc gac aga gcc ttc cac cgc aac agc ctg gac atc ttc	9504
Leu Asp Gly Asp Arg Ala Phe His Arg Asn Ser Leu Asp Ile Phe	
3155 3160 3165	
cgg atc gcc acc ccg cac agc ctg ggt agc gtg tgg aag atc cga	9549
Arg Ile Ala Thr Pro His Ser Leu Gly Ser Val Trp Lys Ile Arg	
3170 3175 3180	
gtg tgg cac gac aac aaa ggg ctc agc cct gcc tgg ttc ctg cag	9594
Val Trp His Asp Asn Lys Gly Leu Ser Pro Ala Trp Phe Leu Gln	
3185 3190 3195	
cac gtc atc gtc agg gac ctg cag acg gca cgc agc gcc ttc ttc	9639
His Val Ile Val Arg Asp Leu Gln Thr Ala Arg Ser Ala Phe Phe	
3200 3205 3210	
ctg gtc aat gac tgg ctt tgc gtg gag acg gag gcc aac ggg ggc	9684
Leu Val Asn Asp Trp Leu Ser Val Glu Thr Glu Ala Asn Gly Gly	
3215 3220 3225	
ctg gtg gag aag gag gtg ctg gcc gcg agc gac gca gcc ctt ttg	9729
Leu Val Glu Lys Glu Val Leu Ala Ala Ser Asp Ala Ala Leu Leu	
3230 3235 3240	
cgc ttc cgg cgc ctg ctg gtg gct gag ctg cag cgt ggc ttc ttt	9774
Arg Phe Arg Arg Leu Leu Val Ala Glu Leu Gln Arg Gly Phe Phe	
3245 3250 3255	
gac aag cac atc tgg ctc tcc ata tgg gac cgg ccg cct cgt agc	9819
Asp Lys His Ile Trp Leu Ser Ile Trp Asp Arg Pro Pro Arg Ser	
3260 3265 3270	
cgt ttc act cgc atc cag agg gcc acc tgc tgc gtt ctc ctc atc	9864
Arg Phe Thr Arg Ile Gln Arg Ala Thr Cys Cys Val Leu Leu Ile	
3275 3280 3285	
tgc ctc ttc ctg ggc gcc aac gcc gtg tgg tac ggg gct gtt ggc	9909
Cys Leu Phe Leu Gly Ala Asn Ala Val Trp Tyr Gly Ala Val Gly	
3290 3295 3300	
gac tct gcc tac agc acg ggg cat gtg tcc agg ctg agc ccg ctg	9954
Asp Ser Ala Tyr Ser Thr Gly His Val Ser Arg Leu Ser Pro Leu	
3305 3310 3315	
agc gtc gac aca gtc gct gtt ggc ctg gtg tcc agc gtg gtt gtc	9999
Ser Val Asp Thr Val Ala Val Gly Leu Val Ser Ser Val Val Val	
3320 3325 3330	
tat ccc gtc tac ctg gcc atc ctt ttt ctc ttc cgg atg tcc cgg	10044
Tyr Pro Val Tyr Leu Ala Ile Leu Phe Leu Phe Arg Met Ser Arg	
3335 3340 3345	
agc aag gtg gct ggg agc ccg agc ccc aca cct gcc ggg cag cag	10089
Ser Lys Val Ala Gly Ser Pro Ser Pro Thr Pro Ala Gly Gln Gln	
3350 3355 3360	
gtg ctg gac atc gac agc tgc ctg gac tgc tcc gtg ctg gac agc	10134

Val	Leu	Asp	Ile	Asp	Ser	Cys	Leu	Asp	Ser	Ser	Val	Leu	Asp	Ser	
3365						3370					3375				
tcc	ttc	ctc	acg	ttc	tca	ggc	ctc	cac	gct	gag	cag	gcc	ttt	gtt	10179
Ser	Phe	Leu	Thr	Phe	Ser	Gly	Leu	His	Ala	Glu	Gln	Ala	Phe	Val	
3380						3385					3390				
gga	cag	atg	aag	agt	gac	ttg	ttt	ctg	gat	gat	tct	aag	agt	ctg	10224
Gly	Gln	Met	Lys	Ser	Asp	Leu	Phe	Leu	Asp	Asp	Ser	Lys	Ser	Leu	
3395						3400					3405				
gtg	tgc	tgg	ccc	tcg	ggc	gag	gga	acg	ctc	agt	tgg	ccg	gac	ctg	10269
Val	Cys	Trp	Pro	Ser	Gly	Glu	Gly	Thr	Leu	Ser	Trp	Pro	Asp	Leu	
3410						3415					3420				
ctc	agt	gac	ccg	tcg	att	gtg	ggg	agc	aat	ctg	cgg	cag	ctg	gca	10314
Leu	Ser	Asp	Pro	Ser	Ile	Val	Gly	Ser	Asn	Leu	Arg	Gln	Leu	Ala	
3425						3430					3435				
cgg	ggc	cag	gcg	ggc	cat	ggg	ctg	ggc	cca	gag	gag	gac	ggc	ttc	10359
Arg	Gly	Gln	Ala	Gly	His	Gly	Leu	Gly	Pro	Glu	Glu	Asp	Gly	Phe	
3440						3445					3450				
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Ser	Leu	Ala	Ser	Pro	Tyr	Ser	Pro	Ala	Lys	Ser	Phe	Ser	Ala	Ser	
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Asp	Glu	Asp	Leu	Ile	Gln	Gln	Val	Leu	Ala	Glu	Gly	Val	Ser	Ser	
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cca	gcc	cct	acc	caa	gac	acc	cac	atg	gaa	acg	gac	ctg	ctc	agc	10494
Pro	Ala	Pro	Thr	Gln	Asp	Thr	His	Met	Glu	Thr	Asp	Leu	Leu	Ser	
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Ser	Leu	Ser	Ser	Thr	Pro	Gly	Glu	Lys	Thr	Glu	Thr	Leu	Ala	Leu	
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cag	agg	ctg	ggg	gag	ctg	ggg	cca	ccc	agc	cca	ggc	ctg	aac	tgg	10584
Gln	Arg	Leu	Gly	Glu	Leu	Gly	Pro	Pro	Ser	Pro	Gly	Leu	Asn	Trp	
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gaa	cag	ccc	cag	gca	gcg	agg	ctg	tcc	agg	aca	gga	ctg	gtg	gag	10629
Glu	Gln	Pro	Gln	Ala	Ala	Arg	Leu	Ser	Arg	Thr	Gly	Leu	Val	Glu	
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Gly	Leu	Arg	Lys	Arg	Leu	Leu	Pro	Ala	Trp	Cys	Ala	Ser	Leu	Ala	
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His	Gly	Leu	Ser	Leu	Leu	Leu	Val	Ala	Val	Ala	Val	Ala	Val	Ser	
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Gly	Trp	Val	Gly	Ala	Ser	Phe	Pro	Pro	Gly	Val	Ser	Val	Ala	Trp	
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Glu Pro Leu Lys Val Leu Leu	Glu Ala Leu Tyr Phe	Ser Leu Val			
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Ala Lys Arg Leu His Pro Asp	Glu Asp Asp Thr Leu	Val Glu Ser			
3620	3625	3630			
ccg gct gtg acg cct gtg agc	gca cgt gtg ccc cgc	gta cgg cca	10944		
Pro Ala Val Thr Pro Val Ser	Ala Arg Val Pro Arg	Val Arg Pro			
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Pro His Gly Phe Ala Leu Phe	Leu Ala Lys Glu Glu	Ala Arg Lys			
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gtc aag agg cta cat ggc atg	ctg cgg agc ctc ctg	gtg tac atg	11034		
Val Lys Arg Leu His Gly Met	Leu Arg Ser Leu Leu	Val Tyr Met			
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Leu Phe Leu Leu Val Thr Leu	Leu Ala Ser Tyr Gly	Asp Ala Ser			
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Cys His Gly His Ala Tyr Arg	Leu Gln Ser Ala Ile	Lys Gln Glu			
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Leu His Ser Arg Ala Phe Leu	Ala Ile Thr Arg Ser	Glu Glu Leu			
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Trp Pro Trp Met Ala His Val	Leu Leu Pro Tyr Val	His Gly Asn			
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Gln Ser Ser Pro Glu Leu Gly	Pro Pro Arg Leu Arg	Gln Val Arg			
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Leu Gln Glu Ala Leu Tyr Pro	Asp Pro Pro Gly Pro	Arg Val His			
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Thr Cys Ser Ala Ala Gly Gly	Phe Ser Thr Ser Asp	Tyr Asp Val			
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Gly Trp Glu Ser Pro His Asn	Gly Ser Gly Thr Trp	Ala Tyr Ser			
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Ala Pro Asp Leu Leu Gly Ala	Trp Ser Trp Gly Ser	Cys Ala Val			
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Tyr Asp Ser Gly Gly Tyr Val	Gln Glu Leu Gly Leu	Ser Leu Glu			
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Glu Ser Arg Asp Arg Leu Arg Phe Leu Gln Leu His Asn Trp Leu	
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Pro Ala Val Gly Leu His Ala Ala Val Thr Leu Arg Leu Glu Phe	
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Thr Arg Phe Val Arg Gly Arg Pro Arg Arg Phe Thr Ser Phe Asp	
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Gln Val Ala His Val Ser Ser Ala Ala Arg Gly Leu Ala Ala Ser	
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Leu Leu Phe Leu Leu Leu Val Lys Ala Ala Gln His Val Arg Phe	
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Val Arg Gln Trp Ser Val Phe Gly Lys Thr Leu Cys Arg Ala Leu	
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cca gag ctg ctg ggg gtc acc ttg gcc ctg gtg gtg ctg ggg gta	12114
Pro Glu Leu Leu Gly Val Thr Leu Gly Leu Val Val Leu Gly Val	
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Ala Tyr Ala Gln Leu Ala Ile Leu Leu Val Ser Ser Cys Val Asp	
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Thr Gly	Leu Ser	Thr Leu	Cys Pro	Ala Glu	Ser Trp	His Leu	Ser	
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ccc ctg	ctg tgt	gtg ggg	ctc tgg	gca ctg	cgg ctg	tgg ggc	gcc	12294
Pro Leu	Leu Cys	Val Gly	Leu Trp	Ala Leu	Arg Leu	Trp Gly	Ala	
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Leu Arg	Leu Gly	Ala Val	Ile Leu	Arg Trp	Arg Tyr	His Ala	Leu	
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cgt gga	gag ctg	tac cgg	ccg gcc	tgg gag	ccc cag	gac tac	gag	12384
Arg Gly	Glu Leu	Tyr Arg	Pro Ala	Trp Glu	Pro Gln	Asp Tyr	Glu	
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Met Val	Glu Leu	Phe Leu	Arg Arg	Leu Arg	Leu Trp	Met Gly	Leu	
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agc aag	gtc aag	gag ttc	cgc cac	aaa gtc	cgc ttt	gaa ggg	atg	12474
Ser Lys	Val Lys	Glu Phe	Arg His	Lys Val	Arg Phe	Glu Gly	Met	
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Glu Pro	Leu Pro	Ser Arg	Ser Ser	Arg Gly	Ser Lys	Val Ser	Pro	
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gat gtg	ccc cca	ccc agc	gct ggc	tcc gat	gcc tgc	cac ccc	tcc	12564
Asp Val	Pro Pro	Pro Ser	Ala Gly	Ser Asp	Ala Ser	His Pro	Ser	
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acc tcc	tcc agc	cag ctg	gat ggg	ctg agc	gtg agc	ctg ggc	cgg	12609
Thr Ser	Ser Ser	Gln Leu	Asp Gly	Leu Ser	Val Ser	Leu Gly	Arg	
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ctg ggg	aca agg	tgt gag	cct gag	ccc tcc	cgc ctc	caa gcc	gtg	12654
Leu Gly	Thr Arg	Cys Glu	Pro Glu	Pro Ser	Arg Leu	Gln Ala	Val	
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Phe Glu	Ala Leu	Leu Thr	Gln Phe	Asp Arg	Leu Asn	Gln Ala	Thr	
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gag gac	gtc tac	cag ctg	gag cag	cag ctg	cac agc	ctg caa	ggc	12744
Glu Asp	Val Tyr	Gln Leu	Glu Gln	Gln Leu	His Ser	Leu Gln	Gly	
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cgc agg	agc agc	cgg ggc	ccc gcc	gga tct	tcc cgt	ggc cca	tcc	12789
Arg Arg	Ser Ser	Arg Ala	Pro Ala	Gly Ser	Ser Arg	Gly Pro	Ser	
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Pro Gly	Leu Arg	Pro Ala	Leu Pro	Ser Arg	Leu Ala	Arg Ala	Ser	
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Arg Gly Val Asp Leu Ala Thr Gly Pro Ser Arg Thr Pro Leu Arg
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 Ala Lys Asn Lys Val His Pro Ser Ser Thr
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 <211> 4303
 <212> PRT
 <213> Homo sapiens PKD-1 gene

<400> 2

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Leu Trp Leu Gly Ala Leu Ala Gly Gly Pro Gly Arg Gly Cys Gly Pro
 20 25 30

Cys Glu Pro Pro Cys Leu Cys Gly Pro Ala Pro Gly Ala Ala Cys Arg
 35 40 45

Val Asn Cys Ser Gly Arg Gly Leu Arg Thr Leu Gly Pro Ala Leu Arg
 50 55 60

Ile Pro Ala Asp Ala Thr Glu Leu Asp Val Ser His Asn Leu Leu Arg
 65 70 75 80

Ala Leu Asp Val Gly Leu Leu Ala Asn Leu Ser Ala Leu Ala Glu Leu
 85 90 95

Asp Ile Ser Asn Asn Lys Ile Ser Thr Leu Glu Glu Gly Ile Phe Ala
 100 105 110

Asn Leu Phe Asn Leu Ser Glu Ile Asn Leu Ser Gly Asn Pro Phe Glu
 115 120 125

Cys Asp Cys Gly Leu Ala Trp Leu Pro Gln Trp Ala Glu Glu Gln Gln
 130 135 140

Val Arg Val Val Gln Pro Glu Ala Ala Thr Cys Ala Gly Pro Gly Ser
 145 150 155 160

Leu Ala Gly Gln Pro Leu Leu Gly Ile Pro Leu Leu Asp Ser Gly Cys
 165 170 175

Gly Glu Glu Tyr Val Ala Cys Leu Pro Asp Asn Ser Ser Gly Thr Val
 180 185 190

Ala Ala Val Ser Phe Ser Ala Ala His Glu Gly Leu Leu Gln Pro Glu
 195 200 205

Ala Cys Ser Ala Phe Cys Phe Ser Thr Gly Gln Gly Leu Ala Ala Leu
 210 215 220

Ser Glu Gln Gly Trp Cys Leu Cys Gly Ala Ala Gln Pro Ser Ser Ala
 225 230 235 240

Ser Phe Ala Cys Leu Ser Leu Cys Ser Gly Pro Pro Ala Pro Pro Ala
 245 250 255

Pro Thr Cys Arg Gly Pro Thr Leu Leu Gln His Val Phe Pro Ala Ser
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Pro Gly Ala Thr Leu Val Gly Pro His Gly Pro Leu Ala Ser Gly Gln
 275 280 285

Leu Ala Ala Phe His Ile Ala Ala Pro Leu Pro Val Thr Asp Thr Arg
 290 295 300

Trp Asp Phe Gly Asp Gly Ser Ala Glu Val Asp Ala Ala Gly Pro Ala
 305 310 315 320

Ala Ser His Arg Tyr Val Leu Pro Gly Arg Tyr His Val Thr Ala Val
 325 330 335

Leu Ala Leu Gly Ala Gly Ser Ala Leu Leu Gly Thr Asp Val Gln Val
 340 345 350

Glu Ala Ala Pro Ala Ala Leu Glu Leu Val Cys Pro Ser Ser Val Gln
 355 360 365

Ser Asp Glu Ser Leu Asp Leu Ser Ile Gln Asn Arg Gly Gly Ser Gly
 370 375 380

Leu Glu Ala Ala Tyr Ser Ile Val Ala Leu Gly Glu Glu Pro Ala Arg
 385 390 395 400

Ala Val His Pro Leu Cys Pro Ser Asp Thr Glu Ile Phe Pro Gly Asn
 405 410 415

Gly His Cys Tyr Arg Leu Val Val Glu Lys Ala Ala Trp Leu Gln Ala
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Gln Glu Gln Cys Gln Ala Trp Ala Gly Ala Ala Leu Ala Met Val Asp
 435 440 445

Ser Pro Ala Val Gln Arg Phe Leu Val Ser Arg Val Thr Arg Ser Leu
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Asp Val Trp Ile Gly Phe Ser Thr Val Gln Gly Val Glu Val Gly Pro
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Ala Pro Gln Gly Glu Ala Phe Ser Leu Glu Ser Cys Gln Asn Trp Leu
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Pro Gly Glu Pro His Pro Ala Thr Ala Glu His Cys Val Arg Leu Gly
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Pro Thr Gly Trp Cys Asn Thr Asp Leu Cys Ser Ala Pro His Ser Tyr
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Val Cys Glu Leu Gln Pro Gly Gly Pro Val Gln Asp Ala Glu Asn Leu
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Leu Val Gly Ala Pro Ser Gly Asp Leu Gln Gly Pro Leu Thr Pro Leu
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Ala Gln Gln Asp Gly Leu Ser Ala Pro His Glu Pro Val Glu Val Met
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Val Phe Pro Gly Leu Arg Leu Ser Arg Glu Ala Phe Leu Thr Thr Ala
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Glu Phe Gly Thr Gln Glu Leu Arg Arg Pro Ala Gln Leu Arg Leu Gln
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Val Tyr Arg Leu Leu Ser Thr Ala Gly Thr Pro Glu Asn Gly Ser Glu
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Pro Glu Ser Arg Ser Pro Asp Asn Arg Thr Gln Leu Ala Pro Ala Cys
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Met Pro Gly Gly Arg Trp Cys Pro Gly Ala Asn Ile Cys Leu Pro Leu
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Asp Ala Ser Cys His Pro Gln Ala Cys Ala Asn Gly Cys Thr Ser Gly
 660 665 670

Pro Gly Leu Pro Gly Ala Pro Tyr Ala Leu Trp Arg Glu Phe Leu Phe
675 680 685

Ser Val Pro Ala Gly Pro Pro Ala Gln Tyr Ser Val Thr Leu His Gly
690 695 700

Gln Asp Val Leu Met Leu Pro Gly Asp Leu Val Gly Leu Gln His Asp
705 710 715 720

Ala Gly Pro Gly Ala Leu Leu His Cys Ser Pro Ala Pro Gly His Pro
725 730 735

Gly Pro Arg Ala Pro Tyr Leu Ser Ala Asn Ala Ser Ser Trp Leu Pro
740 745 750

His Leu Pro Ala Gln Leu Glu Gly Thr Trp Gly Cys Pro Ala Cys Ala
755 760 765

Leu Arg Leu Leu Ala Gln Arg Glu Gln Leu Thr Val Leu Leu Gly Leu
770 775 780

Arg Pro Asn Pro Gly Leu Arg Leu Pro Gly Arg Tyr Glu Val Arg Ala
785 790 795 800

Glu Val Gly Asn Gly Val Ser Arg His Asn Leu Ser Cys Ser Phe Asp
805 810 815

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820 825 830

Asp Gly Arg Leu Tyr Val Pro Thr Asn Gly Ser Ala Leu Val Leu Gln
835 840 845

Val Asp Ser Gly Ala Asn Ala Thr Ala Thr Ala Arg Trp Pro Gly Gly
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Ser Leu Ser Ala Arg Phe Glu Asn Val Cys Pro Ala Leu Val Ala Thr
865 870 875 880

Phe Val Pro Ala Cys Pro Trp Glu Thr Asn Asp Thr Leu Phe Ser Val
885 890 895

Val Ala Leu Pro Trp Leu Ser Glu Gly Glu His Val Val Asp Val Val
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Val Glu Asn Ser Ala Ser Arg Ala Asn Leu Ser Leu Arg Val Thr Ala

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Glu Glu Pro Ile Cys Gly Leu Arg Ala Thr Pro Ser Pro Glu Ala Arg		
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Val Leu Gln Gly Val Leu Val Arg Tyr Ser Pro Val Val Glu Ala Gly		
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Ser Asp Met Val Phe Arg Trp Thr Ile Asn Asp Lys Gln Ser Leu Thr		
	965	970 975
Phe Gln Asn Val Val Phe Asn Val Ile Tyr Gln Ser Ala Ala Val Phe		
	980	985 990
Lys Leu Ser Leu Thr Ala Ser Asn His Val Ser Asn Val Thr Val Asn		
	995	1000 1005
Tyr Asn Val Thr Val Glu Arg Met Asn Arg Met Gln Gly Leu Gln		
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Val Ser Thr Val Pro Ala Val Leu Ser Pro Asn Ala Thr Leu Ala		
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Leu Thr Ala Gly Val Leu Val Asp Ser Ala Val Glu Val Ala Phe		
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Leu Trp Thr Phe Gly Asp Gly Glu Gln Ala Leu His Gln Phe Gln		
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Pro Pro Tyr Asn Glu Ser Phe Pro Val Pro Asp Pro Ser Val Ala		
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Gln Val Leu Val Glu His Asn Val Thr His Thr Tyr Ala Ala Pro		
1085	1090	1095
Gly Glu Tyr Leu Leu Thr Val Leu Ala Ser Asn Ala Phe Glu Asn		
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Leu Thr Gln Gln Val Pro Val Ser Val Arg Ala Ser Leu Pro Ser		
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Val Ala Val Gly Val Ser Asp Gly Val Leu Val Ala Gly Arg Pro		
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Val Thr Phe Tyr Pro His Pro Leu Pro Ser Pro Gly Gly Val Leu		
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Tyr Thr	Trp Asp Phe Gly Asp	Gly Ser Pro Val Leu	Thr Gln Ser
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Gln Pro	Ala Ala Asn His Thr	Tyr Ala Ser Arg Gly	Thr Tyr His
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Val Arg	Leu Glu Val Asn Asn	Thr Val Ser Gly Ala	Ala Ala Gln
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Ala Asp	Val Arg Val Phe Glu	Glu Leu Arg Gly Leu	Ser Val Asp
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Met Ser	Leu Ala Val Glu Gln	Gly Ala Pro Val Val	Val Ser Ala
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Ala Val	Gln Thr Gly Asp Asn	Ile Thr Trp Thr Phe	Asp Met Gly
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Asp Gly	Thr Val Leu Ser Gly	Pro Glu Ala Thr Val	Glu His Val
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Tyr Leu	Arg Ala Gln Asn Cys	Thr Val Thr Val Gly	Ala Gly Ser
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Pro Ala	Gly His Leu Ala Arg	Ser Leu His Val Leu	Val Phe Val
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Leu Glu	Val Leu Arg Val Glu	Pro Ala Ala Cys Ile	Pro Thr Gln
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Pro Asp	Ala Arg Leu Thr Ala	Tyr Val Thr Gly Asn	Pro Ala His
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Tyr Leu	Phe Asp Trp Thr Phe	Gly Asp Gly Ser Ser	Asn Thr Thr
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Val Arg	Gly Cys Pro Thr Val	Thr His Asn Phe Thr	Arg Ser Gly
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Thr Phe	Pro Leu Ala Leu Val	Leu Ser Ser Arg Val	Asn Arg Ala
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His Tyr	Phe Thr Ser Ile Cys	Val Glu Pro Glu Val	Gly Asn Val
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Thr Leu Gln Pro Glu Arg Gln Phe Val Gln Leu Gly Asp Glu Ala
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Trp Leu Val Ala Cys Ala Trp Pro Pro Phe Pro Tyr Arg Tyr Thr
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Trp Asp Phe Gly Thr Glu Glu Ala Ala Pro Thr Arg Ala Arg Gly
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Pro Glu Val Thr Phe Ile Tyr Arg Asp Pro Gly Ser Tyr Leu Val
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Thr Val Thr Ala Ser Asn Asn Ile Ser Ala Ala Asn Asp Ser Ala
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Leu Val Glu Val Gln Glu Pro Val Leu Val Thr Ser Ile Lys Val
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Asn Gly Ser Leu Gly Leu Glu Leu Gln Gln Pro Tyr Leu Phe Ser
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Ala Val Gly Arg Gly Arg Pro Ala Ser Tyr Leu Trp Asp Leu Gly
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Ser Thr Gly Asp Phe Thr Val Arg Val Ala Gly Trp Asn Glu Val
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Gly Pro Thr Ile Ser Tyr Thr Phe Arg Ser Val Gly Thr Phe Asn
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Trp	Arg	Asp	Arg	Gly	Pro	Ala	Leu	Ala	Gly	Ser	Gly	Lys	Gly	Phe
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1685						1690					1695			
Ala	Thr	Asn	Met	Leu	Gly	Ser	Ala	Trp	Ala	Asp	Cys	Thr	Met	Asp
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Phe	Val	Glu	Pro	Val	Gly	Trp	Leu	Met	Val	Ala	Ala	Ser	Pro	Asn
1715						1720					1725			
Pro	Ala	Ala	Val	Asn	Thr	Ser	Val	Thr	Leu	Ser	Ala	Glu	Leu	Ala
1730						1735					1740			
Gly	Gly	Ser	Gly	Val	Val	Tyr	Thr	Trp	Ser	Leu	Glu	Glu	Gly	Leu
1745						1750					1755			
Ser	Trp	Glu	Thr	Ser	Glu	Pro	Phe	Thr	Thr	His	Ser	Phe	Pro	Thr
1760						1765					1770			
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Gly	Leu	Ser	Ile	Arg	Ala	Ser	Glu	Pro	Gly	Gly	Ser	Phe	Val	Ala
1805						1810					1815			
Ala	Gly	Ser	Ser	Val	Pro	Phe	Trp	Gly	Gln	Leu	Ala	Thr	Gly	Thr
1820						1825					1830			
Asn	Val	Ser	Trp	Cys	Trp	Ala	Val	Pro	Gly	Gly	Ser	Ser	Lys	Arg

1835		1840		1845
Gly Pro His Val Thr Met Val Phe Pro Asp Ala Gly Thr Phe Ser				
1850		1855		1860
Ile Arg Leu Asn Ala Ser Asn Ala Val Ser Trp Val Ser Ala Thr				
1865		1870		1875
Tyr Asn Leu Thr Ala Glu Glu Pro Ile Val Gly Leu Val Leu Trp				
1880		1885		1890
Ala Ser Ser Lys Val Val Ala Pro Gly Gln Leu Val His Phe Gln				
1895		1900		1905
Ile Leu Leu Ala Ala Gly Ser Ala Val Thr Phe Arg Leu Gln Val				
1910		1915		1920
Gly Gly Ala Asn Pro Glu Val Leu Pro Gly Pro Arg Phe Ser His				
1925		1930		1935
Ser Phe Pro Arg Val Gly Asp His Val Val Ser Val Arg Gly Lys				
1940		1945		1950
Asn His Val Ser Trp Ala Gln Ala Gln Val Arg Ile Val Val Leu				
1955		1960		1965
Glu Ala Val Ser Gly Leu Gln Val Pro Asn Cys Cys Glu Pro Gly				
1970		1975		1980
Ile Ala Thr Gly Thr Glu Arg Asn Phe Thr Ala Arg Val Gln Arg				
1985		1990		1995
Gly Ser Arg Val Ala Tyr Ala Trp Tyr Phe Ser Leu Gln Lys Val				
2000		2005		2010
Gln Gly Asp Ser Leu Val Ile Leu Ser Gly Arg Asp Val Thr Tyr				
2015		2020		2025
Thr Pro Val Ala Ala Gly Leu Leu Glu Ile Gln Val Arg Ala Phe				
2030		2035		2040
Asn Ala Leu Gly Ser Glu Asn Arg Thr Leu Val Leu Glu Val Gln				
2045		2050		2055
Asp Ala Val Gln Tyr Val Ala Leu Gln Ser Gly Pro Cys Phe Thr				
2060		2065		2070

Asn Arg Ser Ala Gln Phe Glu Ala Ala Thr Ser Pro Ser Pro Arg
2075 2080 2085

Arg Val Ala Tyr His Trp Asp Phe Gly Asp Gly Ser Pro Gly Gln
2090 2095 2100

Asp Thr Asp Glu Pro Arg Ala Glu His Ser Tyr Leu Arg Pro Gly
2105 2110 2115

Asp Tyr Arg Val Gln Val Asn Ala Ser Asn Leu Val Ser Phe Phe
2120 2125 2130

Val Ala Gln Ala Thr Val Thr Val Gln Val Leu Ala Cys Arg Glu
2135 2140 2145

Pro Glu Val Asp Val Val Leu Pro Leu Gln Val Leu Met Arg Arg
2150 2155 2160

Ser Gln Arg Asn Tyr Leu Glu Ala His Val Asp Leu Arg Asp Cys
2165 2170 2175

Val Thr Tyr Gln Thr Glu Tyr Arg Trp Glu Val Tyr Arg Thr Ala
2180 2185 2190

Ser Cys Gln Arg Pro Gly Arg Pro Ala Arg Val Ala Leu Pro Gly
2195 2200 2205

Val Asp Val Ser Arg Pro Arg Leu Val Leu Pro Arg Leu Ala Leu
2210 2215 2220

Pro Val Gly His Tyr Cys Phe Val Phe Val Val Ser Phe Gly Asp
2225 2230 2235

Thr Pro Leu Thr Gln Ser Ile Gln Ala Asn Val Thr Val Ala Pro
2240 2245 2250

Glu Arg Leu Val Pro Ile Ile Glu Gly Gly Ser Tyr Arg Val Trp
2255 2260 2265

Ser Asp Thr Arg Asp Leu Val Leu Asp Gly Ser Glu Ser Tyr Asp
2270 2275 2280

Pro Asn Leu Glu Asp Gly Asp Gln Thr Pro Leu Ser Phe His Trp
2285 2290 2295

Ala Cys Val Ala Ser Thr Gln Arg Glu Ala Gly Gly Cys Ala Leu
2300 2305 2310

Asn Phe Gly Pro Arg Gly Ser Ser Thr Val Thr Ile Pro Arg Glu
2315 2320 2325

Arg Leu Ala Ala Gly Val Glu Tyr Thr Phe Ser Leu Thr Val Trp
2330 2335 2340

Lys Ala Gly Arg Lys Glu Glu Ala Thr Asn Gln Thr Val Leu Ile
2345 2350 2355

Arg Ser Gly Arg Val Pro Ile Val Ser Leu Glu Cys Val Ser Cys
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Lys Ala Gln Ala Val Tyr Glu Val Ser Arg Ser Ser Tyr Val Tyr
2375 2380 2385

Leu Glu Gly Arg Cys Leu Asn Cys Ser Ser Gly Ser Lys Arg Gly
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Arg Trp Ala Ala Arg Thr Phe Ser Asn Lys Thr Leu Val Leu Asp
2405 2410 2415

Glu Thr Thr Thr Ser Thr Gly Ser Ala Gly Met Arg Leu Val Leu
2420 2425 2430

Arg Arg Gly Val Leu Arg Asp Gly Glu Gly Tyr Thr Phe Thr Leu
2435 2440 2445

Thr Val Leu Gly Arg Ser Gly Glu Glu Glu Gly Cys Ala Ser Ile
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Arg Leu Ser Pro Asn Arg Pro Pro Leu Gly Gly Ser Cys Arg Leu
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Phe Pro Leu Gly Ala Val His Ala Leu Thr Thr Lys Val His Phe
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Glu Cys Thr Gly Trp His Asp Ala Glu Asp Ala Gly Ala Pro Leu
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Val Tyr Ala Leu Leu Leu Arg Arg Cys Arg Gln Gly His Cys Glu
2510 2515 2520

Glu Phe	Cys Val Tyr Lys Gly	Ser Leu Ser Ser Tyr Gly Ala Val
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Leu Pro	Pro Gly Phe Arg Pro His Phe Glu Val Gly	Leu Ala Val
2540	2545	2550
Val Val	Gln Asp Gln Leu Gly	Ala Ala Val Val Ala Leu Asn Arg
2555	2560	2565
Ser Leu	Ala Ile Thr Leu Pro Glu Pro Asn Gly	Ser Ala Thr Gly
2570	2575	2580
Leu Thr	Val Trp Leu His Gly	Leu Thr Ala Ser Val Leu Pro Gly
2585	2590	2595
Leu Leu	Arg Gln Ala Asp Pro Gln His Val Ile Glu	Tyr Ser Leu
2600	2605	2610
Ala Leu	Val Thr Val Leu Asn Glu Tyr Glu Arg Ala	Leu Asp Val
2615	2620	2625
Ala Ala	Glu Pro Lys His Glu Arg Gln His Arg Ala	Gln Ile Arg
2630	2635	2640
Lys Asn	Ile Thr Glu Thr Leu Val Ser Leu Arg Val	His Thr Val
2645	2650	2655
Asp Asp	Ile Gln Gln Ile Ala Ala Ala Leu Ala Gln	Cys Met Gly
2660	2665	2670
Pro Ser	Arg Glu Leu Val Cys Arg Ser Cys Leu Lys	Gln Thr Leu
2675	2680	2685
His Lys	Leu Glu Ala Met Met Leu Ile Leu Gln Ala	Glu Thr Thr
2690	2695	2700
Ala Gly	Thr Val Thr Pro Thr Ala Ile Gly Asp Ser	Ile Leu Asn
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Ala Ser	Gln Ala Tyr Asn Leu Thr Ser Ala Leu Met	Arg Ile Leu

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Met Arg Ser Arg Val Leu Asn	Glu Glu Pro Leu Thr	Leu Ala Gly
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Glu Glu Ile Val Ala Gln Gly	Lys Arg Ser Asp Pro	Arg Ser Leu
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Leu Cys Tyr Gly Gly Ala Pro	Gly Pro Gly Cys His	Phe Ser Ile
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Pro Glu Ala Phe Ser Gly Ala	Leu Ala Asn Leu Ser	Asp Val Val
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Gln Leu Ile Phe Leu Val Asp	Ser Asn Pro Phe Pro	Phe Gly Tyr
2825	2830	2835
Ile Ser Asn Tyr Thr Val Ser	Thr Lys Val Ala Ser	Met Ala Phe
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Gln Thr Gln Ala Gly Ala Gln	Ile Pro Ile Glu Arg	Leu Ala Ser
2855	2860	2865
Glu Arg Ala Ile Thr Val Lys	Val Pro Asn Asn Ser	Asp Trp Ala
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Ala Arg Gly His Arg Ser Ser	Ala Asn Ser Ala Asn	Ser Val Val
2885	2890	2895
Val Gln Pro Gln Ala Ser Val	Gly Ala Val Val Thr	Leu Asp Ser
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Ser Asn Pro Ala Ala Gly Leu	His Leu Gln Leu Asn	Tyr Thr Leu
2915	2920	2925
Leu Asp Gly His Tyr Leu Ser	Glu Glu Pro Glu Pro	Tyr Leu Ala
2930	2935	2940
Val Tyr Leu His Ser Glu Pro	Arg Pro Asn Glu His	Asn Cys Ser
2945	2950	2955
Ala Ser Arg Arg Ile Arg Pro	Glu Ser Leu Gln Gly	Ala Asp His
2960	2965	2970
Arg Pro Tyr Thr Phe Phe Ile	Ser Pro Gly Ser Arg	Asp Pro Ala
2975	2980	2985

Gly Ser	Tyr His	Leu Asn	Leu	Ser Ser	His Phe	Arg	Trp Ser	Ala
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Leu Gln	Val Ser	Val Gly	Leu	Tyr Thr	Ser Leu	Cys	Gln Tyr	Phe
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Ser Glu	Glu Asp	Met Val	Trp	Arg Thr	Glu Gly	Leu	Leu Pro	Leu
3020			3025			3030		
Glu Glu	Thr Ser	Pro Arg	Gln	Ala Val	Cys Leu	Thr	Arg His	Leu
3035			3040			3045		
Thr Ala	Phe Gly	Ala Ser	Leu	Phe Val	Pro Pro	Ser	His Val	Arg
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Phe Val	Phe Pro	Glu Pro	Thr	Ala Asp	Val Asn	Tyr	Ile Val	Met
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Leu Thr	Cys Ala	Val Cys	Leu	Val Thr	Tyr Met	Val	Met Ala	Ala
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Ile Leu	His Lys	Leu Asp	Gln	Leu Asp	Ala Ser	Arg	Gly Arg	Ala
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Ile Pro	Phe Cys	Gly Gln	Arg	Gly Arg	Phe Lys	Tyr	Glu Ile	Leu
3110			3115			3120		
Val Lys	Thr Gly	Trp Gly	Arg	Gly Ser	Gly Thr	Thr	Ala His	Val
3125			3130			3135		
Gly Ile	Met Leu	Tyr Gly	Val	Asp Ser	Arg Ser	Gly	His Arg	His
3140			3145			3150		
Leu Asp	Gly Asp	Arg Ala	Phe	His Arg	Asn Ser	Leu	Asp Ile	Phe
3155			3160			3165		
Arg Ile	Ala Thr	Pro His	Ser	Leu Gly	Ser Val	Trp	Lys Ile	Arg
3170			3175			3180		
Val Trp	His Asp	Asn Lys	Gly	Leu Ser	Pro Ala	Trp	Phe Leu	Gln
3185			3190			3195		
His Val	Ile Val	Arg Asp	Leu	Gln Thr	Ala Arg	Ser	Ala Phe	Phe
3200			3205			3210		

Leu Val Asn Asp Trp Leu Ser Val Glu Thr Glu Ala Asn Gly Gly
3215 3220 3225

Leu Val Glu Lys Glu Val Leu Ala Ala Ser Asp Ala Ala Leu Leu
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Arg Phe Arg Arg Leu Leu Val Ala Glu Leu Gln Arg Gly Phe Phe
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Asp Lys His Ile Trp Leu Ser Ile Trp Asp Arg Pro Pro Arg Ser
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Arg Phe Thr Arg Ile Gln Arg Ala Thr Cys Cys Val Leu Leu Ile
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Cys Leu Phe Leu Gly Ala Asn Ala Val Trp Tyr Gly Ala Val Gly
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Asp Ser Ala Tyr Ser Thr Gly His Val Ser Arg Leu Ser Pro Leu
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Ser Lys Val Ala Gly Ser Pro Ser Pro Thr Pro Ala Gly Gln Gln
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Ser Leu	Ala Ser Pro Tyr Ser	Pro Ala Lys Ser Phe	Ser Ala Ser
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Pro Ala	Pro Thr Gln Asp Thr	His Met Glu Thr Asp	Leu Leu Ser
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His Gly	Leu Ser Leu Leu Leu	Val Ala Val Ala Val	Ala Val Ser
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Leu Leu	Ser Ser Ser Ala Ser	Phe Leu Ala Ser Phe	Leu Gly Trp
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Pro Ala	Val Thr Pro Val Ser	Ala Arg Val Pro Arg	Val Arg Pro
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Pro His	Gly Phe Ala Leu Phe	Leu Ala Lys Glu Glu	Ala Arg Lys
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Val Lys	Arg Leu His Gly Met	Leu Arg Ser Leu Leu	Val Tyr Met

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Leu Phe	Leu Leu Val Thr	Leu	Leu Ala Ser Tyr	Gly Asp Ala Ser
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Cys His	Gly His Ala Tyr	Arg	Leu Gln Ser Ala	Ile Lys Gln Glu
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Leu His	Ser Arg Ala Phe	Leu	Ala Ile Thr Arg	Ser Glu Glu Leu
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Trp Pro	Trp Met Ala His	Val	Leu Leu Pro Tyr	Val His Gly Asn
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Gln Ser	Ser Pro Glu Leu	Gly	Pro Pro Arg Leu	Arg Gln Val Arg
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Leu Gln	Glu Ala Leu Tyr	Pro	Asp Pro Pro Gly	Pro Arg Val His
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Thr Cys	Ser Ala Ala Gly	Gly	Phe Ser Thr Ser	Asp Tyr Asp Val
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Gly Trp	Glu Ser Pro His	Asn	Gly Ser Gly Thr	Trp Ala Tyr Ser
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Ala Pro	Asp Leu Leu Gly	Ala	Trp Ser Trp Gly	Ser Cys Ala Val
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Tyr Asp	Ser Gly Gly Tyr	Val	Gln Glu Leu Gly	Leu Ser Leu Glu
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Glu Ser	Arg Asp Arg Leu	Arg	Phe Leu Gln Leu	His Asn Trp Leu
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Asp Asn	Arg Ser Arg Ala	Val	Phe Leu Glu Leu	Thr Arg Tyr Ser
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Pro Ala	Val Gly Leu His	Ala	Ala Val Thr Leu	Arg Leu Glu Phe
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Pro Ala	Ala Gly Arg Ala	Leu	Ala Ala Leu Ser	Val Arg Pro Phe
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Pro Glu Leu Leu Gly Val Thr Leu Gly Leu Val Val Leu Gly Val
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Ala Tyr Ala Gln Leu Ala Ile Leu Leu Val Ser Ser Cys Val Asp
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Ser Leu Trp Ser Val Ala Gln Ala Leu Leu Val Leu Cys Pro Gly
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Pro Leu Leu Cys Val Gly Leu Trp Ala Leu Arg Leu Trp Gly Ala
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Leu Arg Leu Gly Ala Val Ile Leu Arg Trp Arg Tyr His Ala Leu
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Arg Gly Glu Leu Tyr Arg Pro Ala Trp Glu Pro Gln Asp Tyr Glu
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Met Val Glu Leu Phe Leu Arg Arg Leu Arg Leu Trp Met Gly Leu
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Ile Phe Thr Lys Leu Leu Gln Asp Asn Leu Pro Ala His Trp Met Lys	35	40	45
Lys Ser Asn Phe Phe Val Leu Leu Leu Leu Ala Ile Ser Ala Ile Gln	50	55	60
Ile Asp Gly Leu His Tyr Gln Leu Leu Asp Gly Ile Ala Thr Phe Arg	65	70	75
Leu Asp Asn Asp Asp Thr Thr Ile Gly Gly Val Pro Arg Asn Ser Gln	85	90	95
Gly Val Val Lys Ile Lys Leu Ser Cys Gly Leu Asn Arg Leu Ser Val	100	105	110
Glu Asn Lys Val Thr Glu Val Ser Ser Leu Glu Leu Ile His Asn Cys	115	120	125
Ile Gln Thr Glu Thr Arg Leu Val Gly Leu Phe Leu Asn Ser Thr Trp	130	135	140
Ile Thr Leu Asn Glu Val Asn Asp Asp Asp Glu Ile Ser Ile Ala Val	145	150	155
Glu Ala Lys Tyr Glu Val Cys Tyr Asp Asp Gly Ile Asp Arg Cys Asp	165	170	175
Gly Ser Leu Trp Trp Leu Gln Val Gly Gly Asn Glu Met Ala Leu Leu	180	185	190
Gly Tyr Arg Glu Lys Cys Glu Ser Gly Glu Ile Asn Glu Glu Tyr Ala	195	200	205
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Glu Ser Thr Ser Thr Thr Phe Thr Ser Thr Ala Ser Thr Ser Thr Ser
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His Ser	Thr Gln Asn Ile Val	Ser Arg Gly Leu Val	Val Thr Ala
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Ser Tyr	Gly Gly Val Thr Tyr	Thr Ile Thr Cys Thr	Asn Gly Thr
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Gly Lys	Phe Val Glu Val Asp	Thr Asp Asn Ala Ile	Phe Ser Tyr
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Asn Ala	Asp Ser Phe Thr Val	Val Ala Ser Asp Gly	Ser Ser Ala
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Ser Thr	Val Lys Lys Leu Ile	Gln Met Pro Ile Val	Ile Glu Asn
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Val Asn	Leu Ala Leu Phe Asn	Gln Thr Thr Ser Pro	Leu Val Phe
1640	1645	1650	
Ser Asn	Ala Gly Ser Tyr Ser	Met Arg Met Val Leu	Ser Pro Gln
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Leu Ile Thr Ser Gly Ala Leu Glu Ala His Ile Lys Asp Glu Asn

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Gln Ile Ile Ile Pro Ile Thr Gly Thr Thr Ala Pro Ile Tyr Val				
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Asn Gly Arg Gly Ser Glu Asp Asp Ala Val Leu Thr Leu Met Gln				
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Gln Gly Asp Phe Ala Ser Tyr Gln Ile Leu Asp Leu His Ala Phe				
1940		1945		1950
Arg Thr Thr Asn Trp Asn Asn Ser Leu Gln Val Glu Ile Ile Ala				
1955		1960		1965
Ser Gln Asp Tyr Glu Ile Pro Asn Asn Asp Asp Thr Tyr Met Phe				
1970		1975		1980
Ser Ser Phe Gln Ser Leu Pro Gly Pro Leu Glu Ser Asn His Glu				
1985		1990		1995
Trp Ile Phe Asp Leu Asn Thr Leu Asn Lys Thr Ser Asn Tyr Phe				
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Val Thr Ala Gly Asn Leu Ile Asn Asn Thr Gly Leu Phe Phe Ile				
2015		2020		2025
Gly Ile Gly Lys Arg Asn Ser Ser Thr Asn Thr Gly Asn Ser Ser				
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Asp Ile Val Asn Tyr Gly Gln Tyr Asp Ser Met Gln Trp Ser Phe				
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Ala Arg Ser Val Pro Met Asp Tyr Gln Val Ala Ala Val Ser Lys				
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Gly Cys Tyr Phe Tyr Gln Lys Thr Ser Asp Val Phe Asn Ser Glu				
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Gly Met Tyr Pro Ser Asp Gly Gln Gly Met Gln Phe Val Asn Cys				
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Ser Thr Asp His Leu Thr Met Phe Ser Val Gly Ala Phe Asn Pro				
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Glu Lys Asn Val Lys Val Met Ile Ala Ala Val Phe Met Leu Val
2135 2140 2145

Val Tyr Gly Cys Leu Thr Ile Asn Ala Ile Ile Cys Gln Arg Lys
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Asp Ala Ser Arg Gly Arg Leu Arg Phe Leu Lys Asp Asn Glu Pro
2165 2170 2175

His Asp Gly Tyr Met Tyr Val Ile Ala Val Glu Thr Gly Tyr Arg
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Met Phe Ala Thr Thr Asp Ser Thr Ile Cys Phe Asn Leu Ser Gly
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Asn Glu Gly Asp Gln Ile Phe Arg Ser Phe Arg Ser Glu Glu Asp
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Cys Asn Arg Ile Ile Val Lys Asp Leu Gln Thr Gln Asp Ile Tyr
2270 2275 2280

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Phe Ala Met Phe Thr Gly Gly Gly Asn Arg Leu Arg Asp Arg Val
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Ser Arg Gln Asp Tyr Ser Val Ser Ile Ile Phe Ser Leu Val Val
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Ser Gly	Ala Gly Met Ser Leu	Met Asp Asp Leu Ala	Asn Ser Phe
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Thr Ile	Arg Asp Met Leu Cys	Phe Phe Ala Ser Leu	Tyr Ile Met
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Val Met	Leu Thr Tyr Tyr Cys	Lys Asp Arg His Gly	Tyr Trp Tyr
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His Thr	Arg Ala Val Ile Ile	Glu Phe Ser Ala Tyr	Asn Ala Gln
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Asn Arg Ala Met Glu Asp Phe Asn Ala Asn Asn Gly Asn Ser Tyr				
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Ile Asn Leu Thr Glu Gln Arg Asn Trp Glu Ile Val Phe Ser Tyr				
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Cys Leu Ala Gly Ala Val Phe Phe Thr Ser Cys Lys Met Ile Arg				
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Phe Phe Ser Met Thr Phe Asn Ser Val Leu Tyr Ala Val Leu Gly				
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Asn Lys Met Gly Gly Tyr Arg Ser Leu Met Ala Thr Phe Gln Thr				
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Ala Leu Ala Gly Met Leu Gly Lys Leu Asp Val Thr Ser Ile Gln				
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 <213> C. Elegans Pkd-2 protein

<400> 6

Met Glu Gly Arg Gly Glu Gly Glu Asp Leu Pro Pro Thr Ser Tyr Phe
 1 5 10 15

Pro Phe Glu Glu Gly His Thr Leu Trp Met Lys Arg Glu Lys Ile Lys
 20 25 30

His Leu Gln Arg Ile Leu Gln Phe His Ser Asp Glu Ser Ile Leu Met
 35 40 45

Ile Asp Lys Lys Leu Met Ile Ser Gly Gly Leu Glu Pro Pro Thr Phe
 50 55 60

Cys Val Leu Asp Arg Cys Asp Asn His Tyr Thr Thr Lys Pro Arg His
 65 70 75 80

Leu Pro Pro Phe Glu Val Phe Leu Phe Val Val Ile Phe Lys Cys Glu
 85 90 95

Pro Ser Ser Met Asn Tyr Gly Ala Ala Asp Glu Arg Trp Ala Asn Pro
 100 105 110

Pro Gln Pro Val Ala Ala Ala Glu His Gly Pro Ser Phe Asp His Ser
 115 120 125

Met Val Ser Glu Glu Tyr Glu His Asp Lys Lys Lys Asn Pro Ala Gln
 130 135 140

Lys Glu Gly Ile Ser Phe Ser Gln Ala Leu Leu Ala Ser Gly His Glu
 145 150 155 160

Lys Ser Asp Gly Lys Ile Lys Leu Thr Ala Arg Ser Phe Met Glu Val
 165 170 175

Gly Gly Tyr Ala Val Phe Leu Ile Val Leu Val Tyr Val Ala Phe Ala
 180 185 190

Gln Asn Ser Ile Gln Ser Tyr Tyr Tyr Ser Lys Val Met Ser Asp Leu
 195 200 205

Phe Val Ala Ser Thr Gly Ala Ser Gly Ala Pro Ala Phe Gly Ser Cys
 210 215 220

Thr Ser Met Asp Asn Ile Trp Asp Trp Leu Ser Gln Val Leu Ile Pro
 225 230 235 240

Gly Ile Tyr Trp Thr Glu Thr Ser Asn Ser Thr Asp Asn Glu Asn Met
 245 250 255

Ile Tyr Tyr Glu Asn Arg Leu Leu Gly Glu Pro Arg Ile Arg Met Leu
 260 265 270

Lys Val Thr Asn Asp Ser Cys Thr Val Met Lys Ser Phe Gln Arg Glu
 275 280 285

Ile Lys Glu Cys Phe Ala Asn Tyr Glu Glu Lys Leu Glu Asp Lys Thr
 290 295 300

Met Val Gly Asp Gly Ser Val Asp Ala Phe Ile Tyr Ala Thr Ala Lys
 305 310 315 320

Glu Leu Glu Asn Leu Lys Thr Val Gly Thr Ile Ala Ser Tyr Gly Gly
 325 330 335

Gly Gly Phe Val Gln Arg Leu Pro Val Ala Gly Ser Thr Glu Ala Gln
 340 345 350

Ser Ala Ile Ala Thr Leu Lys Ala Asn Arg Trp Ile Asp Arg Gly Ser
 355 360 365

Arg Ala Ile Ile Val Asp Phe Ala Leu Tyr Asn Ala Asn Ile Asn Leu
 370 375 380

Phe Cys Val Val Lys Leu Leu Phe Glu Leu Pro Ala Ser Gly Gly Val
 385 390 395 400

Ile Thr Thr Pro Lys Leu Met Thr Tyr Asp Leu Leu Thr Tyr Gln Thr
 405 410 415

Ser Gly Gly Thr Arg Met Met Ile Phe Glu Gly Ile Phe Cys Gly Phe

420	425	430
Ile Leu Tyr Phe Ile Phe Glu Glu Leu Phe Ala Ile Gly Arg His Arg 435 440 445		
Leu His Tyr Leu Thr Gln Phe Trp Asn Leu Val Asp Val Val Leu Leu 450 455 460		
Gly Phe Ser Val Ala Thr Ile Ile Leu Ser Val Asn Arg Thr Lys Thr 465 470 475 480		
Gly Val Asn Arg Val Asn Ser Val Ile Glu Asn Gly Leu Thr Asn Ala 485 490 495		
Pro Phe Asp Asp Val Thr Ser Ser Glu Asn Ser Tyr Leu Asn Ile Lys 500 505 510		
Ala Cys Val Val Phe Val Ala Trp Val Lys Val Phe Lys Phe Ile Ser 515 520 525		
Val Asn Lys Thr Met Ser Gln Leu Ser Ser Thr Leu Thr Arg Ser Ala 530 535 540		
Lys Asp Ile Gly Gly Phe Ala Val Met Phe Ala Val Phe Phe Phe Ala 545 550 555 560		
Phe Ala Gln Phe Gly Tyr Leu Cys Phe Gly Thr Gln Ile Ala Asp Tyr 565 570 575		
Ser Asn Leu Tyr Asn Ser Ala Phe Ala Leu Leu Arg Leu Ile Leu Gly 580 585 590		
Asp Phe Asn Phe Ser Ala Leu Glu Ser Cys Asn Arg Phe Phe Gly Pro 595 600 605		
Ala Phe Phe Ile Ala Tyr Val Phe Phe Val Ser Phe Ile Leu Leu Asn 610 615 620		
Met Phe Leu Ala Ile Ile Asn Asp Ser Tyr Val Glu Val Lys Ala Glu 625 630 635 640		
Leu Ala Arg Lys Lys Asp Gly Glu Gly Ile Leu Asp Trp Phe Met Asn 645 650 655		
Lys Val Arg Gly Leu Thr Lys Arg Gly Lys Arg Pro Asp Ala Pro Gly 660 665 670		

Glu Asp Ala Thr Tyr Glu Asp Tyr Lys Leu Met Leu Tyr Arg Ala Gly
 675 580 685

Tyr Ala Glu Lys Asp Ile Asn Glu Ala Phe Thr Arg Phe Asn Val Thr
 690 695 700

Ser Met Thr Glu His Val Pro Glu Lys Val Ala Glu Asp Ile Ala Asp
 705 710 715 720

Glu Val Ala Arg Met Thr Glu Gln Lys Arg Asn Tyr Met Glu Asn His
 725 730 735

Arg Asp Tyr Ala Asn Leu Asn Arg Arg Val Asp Gln Met Gln Glu Ser
 740 745 750

Val Phe Ser Ile Val Asp Arg Ile Glu Gly Val Asn Ala Thr Leu Gln
 755 760 765

Thr Ile Glu Lys Gln Arg Val Gln Gln Gln Asp Gly Gly Asn Leu Met
 770 775 780

Asp Leu Ser Ala Leu Leu Thr Asn Gln Val Arg Asn Arg Glu Ser Ala
 785 790 795 800

Ala Arg Arg Pro Thr Ile Thr Ser Ile Ala Asp Lys Lys Glu Glu
 805 810 815

<210> 7
 <211> 22
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Description of Artificial Sequence: Outside primer for PCR
 screening of lov-1 genomic (sy582) deletion

<400> 7
 ctctatttgt gggtcggttg cg

22

<210> 8
 <211> 22
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Description of Artificial Sequence: Outside primer for PCR
 screening of lov-1 genomic (sy582) deletion

<400> 8

gggagtttcc gttttcatgg gg

22

<210> 9
 <211> 22
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Description of Artificial Sequence: Nested primer for PCR
 screening of lov-1 genomic (sy582) deletion

<400> 9
 ctaggaccga tgcaacagcg ag

22

<210> 10
 <211> 22
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Description of Artificial Sequence: Nested primer for PCR
 screening of lov-1 genomic (sy582) deletion

<400> 10
 aacgctgatt ggttcaagtg tg

22

<210> 11
 <211> 22
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Description of Artificial Sequence: Outside primer for PCR
 screening of pkd-2 genomic (sy606) deletion

<400> 11
 cccctcgttt gaccattcta tgg

23

<210> 12
 <211> 22
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Description of Artificial Sequence: Outside primer for PCR
 screening of pkd-2 genomic (sy606) deletion

<400> 12
 aggtgatctt ctgtcgatcc ag

22

<210> 13
 <211> 22
 <212> DNA
 <213> Artificial sequence

<220>

<223> Description of Artificial Sequence: Nested primer for PCR screening of pkd-2 genomic (sy606) deletion

<400> 13
agatcaagct gactgcccgt tc 22

<210> 14
<211> 23
<212> DNA
<213> Artificial sequence

<220>
<223> Description of Artificial Sequence: Nested primer for PCR screening of pkd-2 genomic (sy606) deletion

<400> 14
gatccagcga ttagccttta acg 23

<210> 15
<211> 2870
<212> PRT
<213> C. Elegans Lov-1 sy582 deletion protein

<400> 15

Met Val Leu Arg Phe Ser Pro Pro Phe Arg Phe Ser Thr Thr Ser Phe
1 5 10 15

Phe Ser Cys Cys Leu Phe Cys Ser Glu Phe Ile Phe Val Phe Arg Arg
20 25 30

Ile Phe Thr Lys Leu Leu Gln Asp Asn Leu Pro Ala His Trp Met Lys
35 40 45

Lys Ser Asn Phe Phe Val Leu Leu Leu Ala Ile Ser Ala Ile Gln
50 55 60

Ile Asp Gly Leu His Tyr Gln Leu Leu Asp Gly Ile Ala Thr Phe Arg
65 70 75 80

Leu Asp Asn Asp Asp Thr Thr Ile Gly Gly Val Pro Arg Asn Ser Gln
85 90 95

Gly Val Val Lys Ile Lys Leu Ser Cys Gly Leu Asn Arg Leu Ser Val
100 105 110

Glu Asn Lys Val Thr Glu Val Ser Ser Leu Glu Leu Ile His Asn Cys
115 120 125

Ile Gln Thr Glu Thr Arg Leu Val Gly Leu Phe Leu Asn Ser Thr Trp
130 135 140

Ile Thr Leu Asn Glu Val Asn Asp Asp Asp Glu Ile Ser Ile Ala Val
 145 150 155 160

Glu Ala Lys Tyr Glu Val Cys Tyr Asp Asp Gly Ile Asp Arg Cys Asp
 165 170 175

Gly Ser Leu Trp Trp Leu Gln Val Gly Gly Asn Glu Met Ala Leu Leu
 180 185 190

Gly Tyr Arg Glu Lys Cys Glu Ser Gly Glu Ile Asn Glu Glu Tyr Ala
 195 200 205

Arg Arg Met Cys Lys Arg Pro Tyr Arg Ser Glu Lys Ser Thr Ala Ile
 210 215 220

Ser Asp Ser Gln Gly Val Tyr Tyr Asp Gly Gln Val Leu Lys Gly Val
 225 230 235 240

Arg Ala Lys Gln Phe Ser Met Arg Thr Ser Gly Ser Pro Thr Leu Arg
 245 250 255

Arg Met Lys Arg Asp Ala Gly Asp Asn Thr Cys Asp Tyr Thr Ile Glu
 260 265 270

Ser Thr Ser Thr Ser Thr Thr Thr Pro Thr Thr Thr Thr Val Thr Ser
 275 280 285

Thr Val Thr Ser Thr Thr Thr Val Pro Thr Ser Thr Ser Thr Val Thr
 290 295 300

Thr Ala Met Ser Thr Ser Thr Ser Thr Pro Ser Thr Ser Thr Thr Ile
 305 310 315 320

Glu Ser Thr Ser Thr Thr Phe Thr Ser Thr Ala Ser Thr Ser Thr Ser
 325 330 335

Ser Thr Ser Thr Thr Gln Gln Ser Ser Ser Thr Ile Thr Ser Ser Pro
 340 345 350

Ser Ser Thr Thr Leu Ser Thr Ser Ile Pro Thr Thr Thr Thr Pro Glu
 355 360 365

Ile Thr Ser Thr Leu Ser Ser Leu Pro Asp Asn Ala Ile Cys Ser Tyr
 370 375 380

Leu Asp Glu Thr Thr Thr Ser Thr Thr Phe Thr Thr Thr Met Leu Thr
385 390 395 400

Ser Thr Thr Thr Glu Glu Pro Ser Thr Ser Thr Thr Thr Thr Glu Val
405 410 415

Thr Ser Thr Ser Ser Thr Val Thr Thr Thr Glu Pro Thr Thr Thr Leu
420 425 430

Thr Thr Ser Thr Ala Ser Thr Ser Thr Thr Glu Pro Ser Thr Ser Thr
435 440 445

Val Thr Thr Ser Pro Ser Thr Ser Pro Val Thr Ser Thr Val Thr Ser
450 455 460

Ser Ser Ser Ser Ser Thr Thr Val Thr Thr Pro Thr Ser Thr Glu Ser
465 470 475 480

Thr Ser Thr Ser Pro Ser Ser Thr Val Thr Thr Ser Thr Thr Ala Pro
485 490 495

Ser Thr Ser Thr Thr Gly Pro Ser Ser Ser Ser Thr Pro Ser Ser
500 505 510

Thr Ala Ser Ser Ser Val Ser Ser Thr Ala Ser Ser Thr Gln Ser Ser
515 520 525

Thr Ser Thr Gln Gln Ser Ser Thr Thr Thr Lys Ser Glu Thr Thr Thr
530 535 540

Ser Ser Asp Gly Thr Asn Pro Asp Phe Tyr Phe Val Glu Lys Ala Thr
545 550 555 560

Thr Thr Phe Tyr Asp Ser Thr Ser Val Asn Leu Thr Leu Asn Ser Gly
565 570 575

Leu Gly Ile Ile Gly Tyr Gln Thr Ser Ile Glu Cys Thr Ser Pro Thr
580 585 590

Ser Ser Asn Tyr Val Ser Thr Thr Lys Asp Gly Ala Cys Phe Thr Lys
595 600 605

Ser Val Ser Met Pro Arg Leu Gly Gly Thr Tyr Pro Ala Ser Thr Phe
610 615 620

Val Gly Pro Gly Asn Tyr Thr Phe Arg Ala Thr Met Thr Thr Asp Asp
625 630 635 640

Lys Lys Val Tyr Tyr Thr Tyr Ala Asn Val Tyr Ile Gln Glu Tyr Ser
645 650 655

Ser Thr Thr Ile Glu Ser Glu Ser Ser Thr Ser Ala Val Ala Ser Ser
660 665 670

Thr Ser Ser Thr Pro Ser Thr Pro Ser Ser Thr Leu Ser Thr Ser Thr
675 680 685

Val Thr Glu Pro Ser Ser Thr Arg Ser Ser Asp Ser Thr Thr Thr Ser
690 695 700

Ala Gly Ser Thr Thr Thr Leu Gln Glu Ser Thr Thr Thr Ser Glu Glu
705 710 715 720

Ser Thr Thr Asp Ser Ser Thr Thr Thr Ile Ser Asp Thr Ser Thr Ser
725 730 735

Thr Ser Ser Pro Ser Ser Thr Thr Ala Asp Ser Thr Ser Thr Leu Ser
740 745 750

Val Asp Gln Phe Asp Phe Ile Leu Asp Ser Gly Leu Ser Trp Asn Glu
755 760 765

Thr Arg His Asn Glu Asp Ser Ile Asn Ile Val Pro Leu Pro Thr Asn
770 775 780

Ala Ile Thr Pro Thr Glu Arg Ser Gln Thr Phe Glu Cys Arg Asn Val
785 790 795 800

Ser Thr Glu Pro Phe Leu Ile Ile Lys Glu Ser Thr Cys Leu Asn Tyr
805 810 815

Ser Asn Thr Val Leu Asn Ala Thr Tyr Ser Ser Asn Ile Pro Ile Gln
820 825 830

Pro Ile Glu Thr Phe Leu Val Gly Ile Gly Thr Tyr Glu Phe Arg Ile
835 840 845

Asn Met Thr Asp Leu Thr Thr Met Gln Val Val Ser His Ile Phe Thr
850 855 860

Leu Asn Val Val Ala Asp Ser Thr Ser Thr Ser Glu Val Thr Ser Thr

865		870		875		880
Thr Ser Thr Gly Ser Ser Ser Glu Ser Ser Ala Ile Ser Thr Thr Ser						
		885		890		895
Gly Ile Glu Ser Thr Ser Thr Leu Glu Ala Ser Thr Thr Asp Ala Ser						
		900		905		910
Gln Asp Ser Ser Thr Ser Thr Ser Asp Ser Gly Thr Thr Ser Asp Ser						
		915		920		925
Thr Thr Ile Asp Ser Ser Asn Ser Thr Pro Ser Thr Ser Asp Ser Ser						
		930		935		940
Gly Leu Ser Gln Thr Pro Ser Asp Ser Ser Ser Ala Ser Asp Ser Met						
		945		950		955
						960
Arg Thr Thr Thr Val Asp Pro Asp Ala Ser Thr Glu Thr Pro Tyr Asp						
		965		970		975
Phe Val Leu Glu Asn Leu Thr Trp Asn Glu Thr Val Tyr Tyr Ser Glu						
		980		985		990
Asn Pro Phe Tyr Ile Thr Pro Ile Pro Asn Lys Glu Pro Gly Ala Leu						
		995		1000		1005
Thr Thr Ala Met Thr Cys Gln Cys Arg Asn Asp Ser Ser Gln Pro						
		1010		1015		1020
Phe Val Leu Leu Lys Glu Ser Asn Cys Leu Thr Glu Phe Gly Lys						
		1025		1030		1035
Asn Gly Ala Tyr Ser Ala Ser Val Ser Phe Asn Pro Met Thr Ser						
		1040		1045		1050
Phe Val Pro Ala Thr Gly Thr Tyr Glu Phe Leu Ile Asn Val Thr						
		1055		1060		1065
Asn Arg Ala Ser Gly Glu Ser Ala Ser His Ile Phe Thr Met Asn						
		1070		1075		1080
Val Val Leu Pro Thr Thr Thr Thr Glu Thr Pro Pro Thr Thr Val						
		1085		1090		1095
Ser Ser Ser Asp Asp Ala Gly Gly Lys Thr Gly Gly Thr Gly Ala						
		1100		1105		1110

Thr Gly	Gly Thr Gly Gly Thr	Gly Ser Gly Gly Ser	Ala Thr Thr
1115	1120	1125	
Leu Ser	Thr Gly Asp Ala Val	Arg Ser Thr Thr Ser	Gly Ser Gly
1130	1135	1140	
Ser Gly	Gln Ser Ser Thr Gly	Ser Gly Ala Gly Gly	Ser Gly Thr
1145	1150	1155	
Thr Ala	Ser Gly Ser Gly Ser	Gly Gly Ser Ser Gly	Thr Gly Ser
1160	1165	1170	
Asp Gly	Val Asn Ser Gly Lys	Thr Thr Ala Leu Asn	Gly Asp Gly
1175	1180	1185	
Thr Gly	Ser Gly Thr Ala Thr	Thr Pro Gly Ser His	Leu Gly Asp
1190	1195	1200	
Gly Gly	Ser Thr Ser Gly Ser	Gly Ser Asp Ser Asn	Gly Ser Ser
1205	1210	1215	
Gly Val	Ser Thr Lys Ser Ser	Ser Gly Ser Asp Thr	Ser Gly Ser
1220	1225	1230	
Ser Asp	Ser Ser Gly Ala Asn	Gly Ala Phe Ser Ala	Thr Ala Gln
1235	1240	1245	
Pro Ser	Thr Arg Thr Thr Lys	Thr Arg Ser Ser Leu	Ala Thr Val
1250	1255	1260	
Ser Pro	Ile Ser Ala Ala Glu	Gln Ala Ile Ile Asp	Ala Gln Lys
1265	1270	1275	
Ala Asp	Val Met Asn Gln Leu	Ala Gly Ile Met Asp	Gly Ser Ala
1280	1285	1290	
Ser Asn	Asn Ser Leu Asn Thr	Ser Ser Ser Leu Leu	Asn Gln Ile
1295	1300	1305	
Ser Ser	Leu Pro Ala Ala Asp	Leu Val Glu Val Ala	Gln Ser Leu
1310	1315	1320	
Leu Ser	Asn Thr Leu Lys Ile	Pro Gly Val Gly Asn	Met Ser Ser
1325	1330	1335	

Val Asp Val Leu Lys Thr Leu Gln Asp Asn Ile Ala Thr Thr Asn
1340 1345 1350

Ser Glu Leu Ala Asp Glu Met Ala Lys Val Ile Thr Lys Leu Ala
1355 1360 1365

Asn Val Asn Met Thr Ser Ala Gln Ser Leu Asn Ser Val Leu Ser
1370 1375 1380

Ser Leu Asp Leu Ala Leu Lys Gly Ser Thr Val Tyr Thr Leu Gly
1385 1390 1395

Val Ser Ser Thr Lys Ser Lys Asp Gly Thr Tyr Ala Val Ile Phe
1400 1405 1410

Gly Tyr Val Ile Ala Ser Gly Tyr Thr Leu Val Ser Pro Arg Cys
1415 1420 1425

Thr Leu Ser Ile Tyr Gly Ser Thr Ile Tyr Leu Thr Gly Asp Thr
1430 1435 1440

Arg Ala Ser Tyr Lys Gln Leu Asp Gly Asp Thr Val Thr Ala Asp
1445 1450 1455

Thr Met Leu Ala Ala Ala Ile Gly Ile Gln Gly Met Phe Ala Thr
1460 1465 1470

Asn Gly Arg Thr Val Gln Val Glu Gln Asp Lys Ile Asp Asp Lys
1475 1480 1485

Arg Ser Leu Val Ser Gly Asn Ile Met Ala Thr Met Ser Gly Val
1490 1495 1500

Gly Asp Val Gln Ser Gly Glu Tyr Ser Tyr Asn Asp Met Tyr Val
1505 1510 1515

Thr Ala Trp Asn Val Thr Tyr Asp Asn Ser Thr Val Gly Ser Thr
1520 1525 1530

Ser Gln Lys Asn Thr Ser Phe Ser Phe Asn Ile Pro Val Ser Glu
1535 1540 1545

Val Gln Tyr Ile Leu Leu Ile Glu Ser Gly Thr Met Ile Lys Leu
1550 1555 1560

His Ser Thr Gln Asn Ile Val Ser Arg Gly Leu Val Val Thr Ala
1565 1570 1575

Ser Tyr Gly Gly Val Thr Tyr Thr Ile Thr Cys Thr Asn Gly Thr
1580 1585 1590

Gly Lys Phe Val Glu Val Asp Thr Asp Asn Ala Ile Phe Ser Tyr
1595 1600 1605

Asn Ala Asp Ser Phe Thr Val Val Ala Ser Asp Gly Ser Ser Ala
1610 1615 1620

Ser Thr Val Lys Lys Leu Ile Gln Met Pro Ile Val Ile Glu Asn
1625 1630 1635

Val Asn Leu Ala Leu Phe Asn Gln Thr Thr Ser Pro Leu Val Phe
1640 1645 1650

Ser Asn Ala Gly Ser Tyr Ser Met Arg Met Val Leu Ser Pro Gln
1655 1660 1665

Asp Ile Gly Ile Pro Ala Val Ser Ala Leu Ser Gln Thr Val Ser
1670 1675 1680

Ile Ser Thr Leu Ser Pro Thr Ala Ser Tyr Thr Lys Asp Asp Leu
1685 1690 1695

Gln Ser Leu Ile Lys Glu Gln Thr Leu Val Thr Val Ser Gly Thr
1700 1705 1710

Thr Ser Asn Ser Leu Leu Ser Ile Ala Gly Ser Leu Thr Ser Ala
1715 1720 1725

Leu Lys Ile Ala Leu Asp Asn Pro Leu Ser Ser Asp Leu Ala Ala
1730 1735 1740

Asn Leu Lys Tyr Ala Thr Asp Asn Tyr Asp Ser Leu Tyr Asn Val
1745 1750 1755

Leu Pro Ser Asp Pro Asp Asn Ile Val Tyr Val Glu Glu Met Thr
1760 1765 1770

Ser Glu Glu Trp Ala Ala Tyr Val Thr Lys Met Phe Gln Lys Asn
1775 1780 1785

Ile Ala Lys Asn Leu Ala Asn Gln Leu Ala Ser Thr Leu Asp Thr

1790		1795		1800
Leu Glu	Asn Thr	Leu Ala	Ala Arg	Ala Ile
1805		1810		1815
Pro Tyr	Asp Tyr	Ser Asn	Ser Val	Asp Gly
1820		1825		1830
Val Ile	Asp Asp	Ala Ser	Asn Ile	Val Gly
1835		1840		1845
Glu Glu	Trp Ala	Phe Lys	Leu Pro	Ser Ser
1850		1855		1860
Thr Ala	Glu Ile	Thr Asp	Lys Thr	Leu Ile
1865		1870		1875
Cys Tyr	Ala Thr	Asn Pro	Arg Thr	Tyr Val
1880		1885		1890
Leu Ile	Thr Ser	Gly Ala	Leu Glu	Ala His
1895		1900		1905
Gln Ile	Ile Ile	Pro Ile	Thr Gly	Thr Thr
1910		1915		1920
Asn Gly	Arg Gly	Ser Glu	Asp Asp	Ala Val
1925		1930		1935
Gln Gly	Asp Phe	Ala Ser	Tyr Gln	Ile Leu
1940		1945		1950
Arg Thr	Thr Asn	Trp Asn	Asn Ser	Leu Gln
1955		1960		1965
Ser Gln	Asp Tyr	Glu Ile	Pro Asn	Asn Asp
1970		1975		1980
Ser Ser	Phe Gln	Ser Leu	Pro Gly	Pro Leu
1985		1990		1995
Trp Ile	Phe Asp	Leu Asn	Thr Leu	Asn Lys
2000		2005		2010
Val Thr	Ala Gly	Asn Leu	Ile Asn	Asn Thr
2015		2020		2025

Gly Ile	Gly Lys Arg Asn Ser	Ser Thr Asn Thr Gly	Asn Ser Ser
2030	2035	2040	
Asp Ile	Val Asn Tyr Gly Gln	Tyr Asp Ser Met Gln	Trp Ser Phe
2045	2050	2055	
Ala Arg	Ser Val Pro Met Asp	Tyr Gln Val Ala Ala	Val Ser Lys
2060	2065	2070	
Gly Cys	Tyr Phe Tyr Gln Lys	Thr Ser Asp Val Phe	Asn Ser Glu
2075	2080	2085	
Gly Met	Tyr Pro Ser Asp Gly	Gln Gly Met Gln Phe	Val Asn Cys
2090	2095	2100	
Ser Thr	Asp His Leu Thr Met	Phe Ser Val Gly Ala	Phe Asn Pro
2105	2110	2115	
Thr Ile	Asp Ala Asp Phe Ser	Tyr Asn Tyr Asn Val	Asn Glu Ile
2120	2125	2130	
Glu Lys	Asn Val Lys Val Met	Ile Ala Ala Val Phe	Met Leu Val
2135	2140	2145	
Val Tyr	Gly Cys Leu Thr Ile	Asn Ala Ile Ile Cys	Gln Arg Lys
2150	2155	2160	
Asp Ala	Ser Arg Gly Arg Leu	Arg Phe Leu Lys Asp	Asn Glu Pro
2165	2170	2175	
His Asp	Gly Tyr Met Tyr Val	Ile Ala Val Glu Thr	Gly Tyr Arg
2180	2185	2190	
Met Phe	Ala Thr Thr Asp Ser	Thr Ile Cys Phe Asn	Leu Ser Gly
2195	2200	2205	
Asn Glu	Gly Asp Gln Ile Phe	Arg Ser Phe Arg Ser	Glu Glu Asp
2210	2215	2220	
Gly Asn	Trp Glu Phe Pro Phe	Ser Trp Gly Thr Thr	Asp Arg Phe
2225	2230	2235	
Val Met	Thr Thr Ala Phe Pro	Leu Gly Glu Leu Glu	Tyr Met Arg
2240	2245	2250	

Leu Trp	Leu Asp Asp Ala Gly	Leu Asp His Arg Glu	Ser Trp Tyr
2255	2260	2265	
Cys Asn	Arg Ile Ile Val Lys	Asp Leu Gln Thr Gln	Asp Ile Tyr
2270	2275	2280	
Tyr Phe	Pro Phe Asn Asn Trp	Leu Gly Thr Lys Asn	Gly Asp Gly
2285	2290	2295	
Glu Thr	Glu Arg Leu Ala Arg	Val Glu Tyr Lys Arg	Arg Phe Leu
2300	2305	2310	
Asp Glu	Ser Met Ser Met His	Met Leu Ala Gln Thr	Ile Ser Trp
2315	2320	2325	
Phe Ala	Met Phe Thr Gly Gly	Gly Asn Arg Leu Arg	Asp Arg Val
2330	2335	2340	
Ser Arg	Gln Asp Tyr Ser Val	Ser Ile Ile Phe Ser	Leu Val Val
2345	2350	2355	
Val Ser	Met Ile Ser Ile Thr	Ile Leu Lys Ser Asp	Asn Ser Ile
2360	2365	2370	
Ile Ser	Asp Ser Lys Ser Val	Ser Glu Phe Thr Phe	Thr Ile Lys
2375	2380	2385	
Asp Ile	Ala Phe Gly Val Gly	Phe Gly Val Leu Ile	Thr Phe Leu
2390	2395	2400	
Asn Ser	Leu His Ile Leu Leu	Cys Thr Lys Cys Arg	Ser His Ser
2405	2410	2415	
Glu His	Tyr Tyr Tyr Lys Lys	Arg Lys Arg Glu Asp	Pro Glu Phe
2420	2425	2430	
Lys Asp	Asn Ser Gly Ser Trp	Pro Met Phe Met Ala	Gly Met Ala
2435	2440	2445	
Arg Thr	Ile Ile Val Phe Pro	Val Leu Met Gly Leu	Ile Tyr Ile
2450	2455	2460	
Ser Gly	Ala Gly Met Ser Leu	Met Asp Asp Leu Ala	Asn Ser Phe
2465	2470	2475	

Tyr Ile	Arg Phe Leu Ile	Ser	Leu Ile Leu Trp	Ala	Val Val Phe
2480		2485		2490	
Glu Pro	Ile Lys Gly Leu Ile	Trp Ala Phe Leu	Ile	Leu Lys Thr	
2495		2500		2505	
Arg Lys	Ser His Lys Ile Ile	Asn Lys Leu Glu	Gly	Ser Asp Gly	
2510		2515		2520	
Thr Val	Val Lys Tyr Tyr Glu	Met Leu Tyr Ile	Phe	Phe Ser Val	
2525		2530		2535	
Leu Ile	Phe Val Lys Glu Ile	Val Phe Tyr Leu Tyr	Gly Arg Tyr		
2540		2545		2550	
Lys Val	Ile Thr Thr Met Lys	Pro Thr Arg Asn	Pro	Phe Lys Ile	
2555		2560		2565	
Val Tyr	Gln Leu Ala Leu Gly	Asn Phe Ser Pro	Trp	Asn Phe Met	
2570		2575		2580	
Asp Leu	Ile Val Gly Ala Leu	Ala Val Ala Ser	Val	Leu Ala Tyr	
2585		2590		2595	
Thr Ile	Arg Gln Arg Thr Thr	Asn Arg Ala Met	Glu	Asp Phe Asn	
2600		2605		2610	
Ala Asn	Asn Gly Asn Ser Tyr	Ile Asn Leu Thr	Glu	Gln Arg Asn	
2615		2620		2625	
Trp Glu	Ile Val Phe Ser Tyr	Cys Leu Ala Gly	Ala	Val Phe Phe	
2630		2635		2640	
Thr Ser	Cys Lys Met Ile Arg	Ile Leu Arg Phe	Asn	Arg Arg Ile	
2645		2650		2655	
Gly Val	Leu Ala Ala Thr Leu	Asp Asn Ala Leu	Gly	Ala Ile Val	
2660		2665		2670	
Ser Phe	Gly Ile Ala Phe Leu	Phe Phe Ser Met	Thr	Phe Asn Ser	
2675		2680		2685	
Val Leu	Tyr Ala Val Leu Gly	Asn Lys Met Gly	Gly	Tyr Arg Ser	
2690		2695		2700	
Leu Met	Ala Thr Phe Gln Thr	Ala Leu Ala Gly	Met	Leu Gly Lys	

2705	2710	2715
Leu Asp Val Thr Ser Ile Gln Pro Ile Ser Gln Phe Ala Phe Val		
2720	2725	2730
Val Ile Met Leu Tyr Met Ile Ala Gly Ser Lys Leu Val Leu Gln		
2735	2740	2745
Leu Tyr Val Thr Ile Ile Met Phe Glu Phe Glu Glu Ile Arg Asn		
2750	2755	2760
Asp Ser Glu Lys Gln Thr Asn Asp Tyr Glu Ile Ile Asp His Ile		
2765	2770	2775
Lys Tyr Lys Thr Lys Arg Arg Leu Gly Leu Leu Glu Pro Lys Asp		
2780	2785	2790
Phe Ala Pro Val Ser Ile Ala Asp Thr Gln Lys Asp Phe Arg Leu		
2795	2800	2805
Phe His Ser Ala Val Ala Lys Val Asn Leu Leu His His Arg Ala		
2810	2815	2820
Thr Arg Met Leu Gln Thr Gln Gly Gln Tyr Gln Asn Gln Thr Val		
2825	2830	2835
Ile Asn Tyr Thr Leu Ser Tyr Asp Pro Val Ser Ala Ile His Glu		
2840	2845	2850
Thr Gly Pro Lys Arg Phe Gln Lys Trp Arg Leu Asn Asp Val Glu		
2855	2860	2865
Lys Asp		
2870		
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<400> 16		
Met Glu Gly Arg Gly Glu Gly Glu Asp Leu Pro Pro Thr Ser Tyr Phe		
1	5	10
Pro Phe Glu Glu Gly His Thr Leu Trp Met Lys Arg Glu Lys Ile Lys		
20	25	30

His Leu Gln Arg Ile Leu Gln Phe His Ser Asp Glu Ser Ile Leu Met
 35 40 45

Ile Asp Lys Lys Leu Met Ile Ser Gly Gly Leu Glu Pro Pro Thr Phe
 50 55 60

Cys Val Leu Asp Arg Cys Asp Asn His Tyr Thr Thr Lys Pro Arg His
 65 70 75 80

Leu Pro Pro Phe Glu Val Phe Leu Phe Val Val Ile Phe Lys Cys Glu
 85 90 95

Pro Ser Ser Met Asn Tyr Gly Ala Ala Asp Glu Arg Trp Ala Asn Pro
 100 105 110

Pro Gln Pro Val Ala Ala Ala Glu His Gly Pro Ser Phe Asp His Ser
 115 120 125

Met Val Ser Glu Glu Tyr Glu His Asp Lys Lys Lys Asn Pro Ala Gln
 130 135 140

Lys Glu Gly Ile Ser Phe Ser Gln Ala Leu Leu Ala Ser Gly His Glu
 145 150 155 160

Lys Ser Asp Gly Lys Ile Lys Leu Thr Ala Arg Ser Phe Met Glu Val
 165 170 175

Gly Gly Tyr Ala Val Phe Leu Ile Val Leu Val Tyr Asp Ser Ser Thr
 180 185 190

Pro Arg Gln Lys Ser Leu Lys Thr
 195 200